SEPTEMBER
1953

fueloil & oil heat

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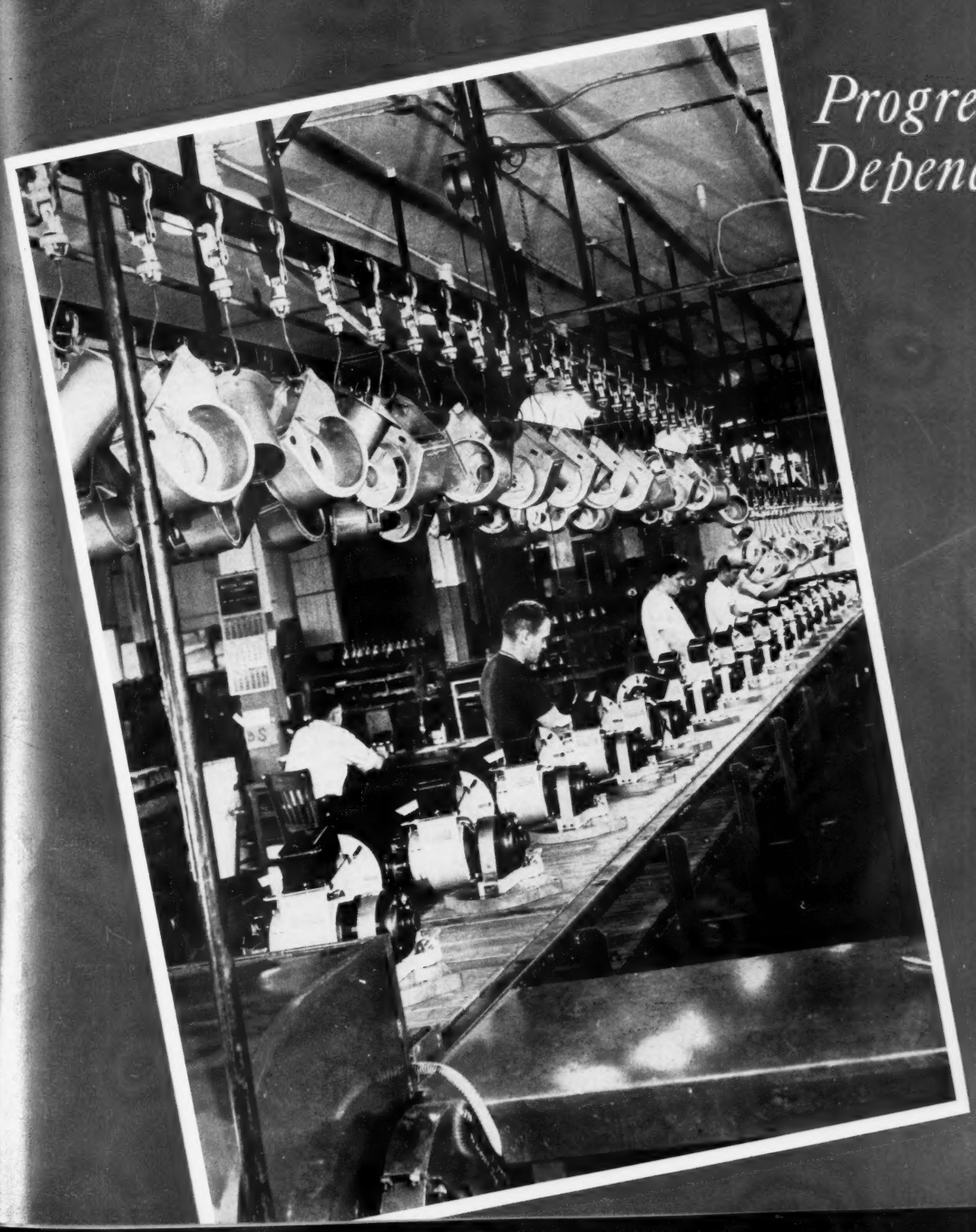

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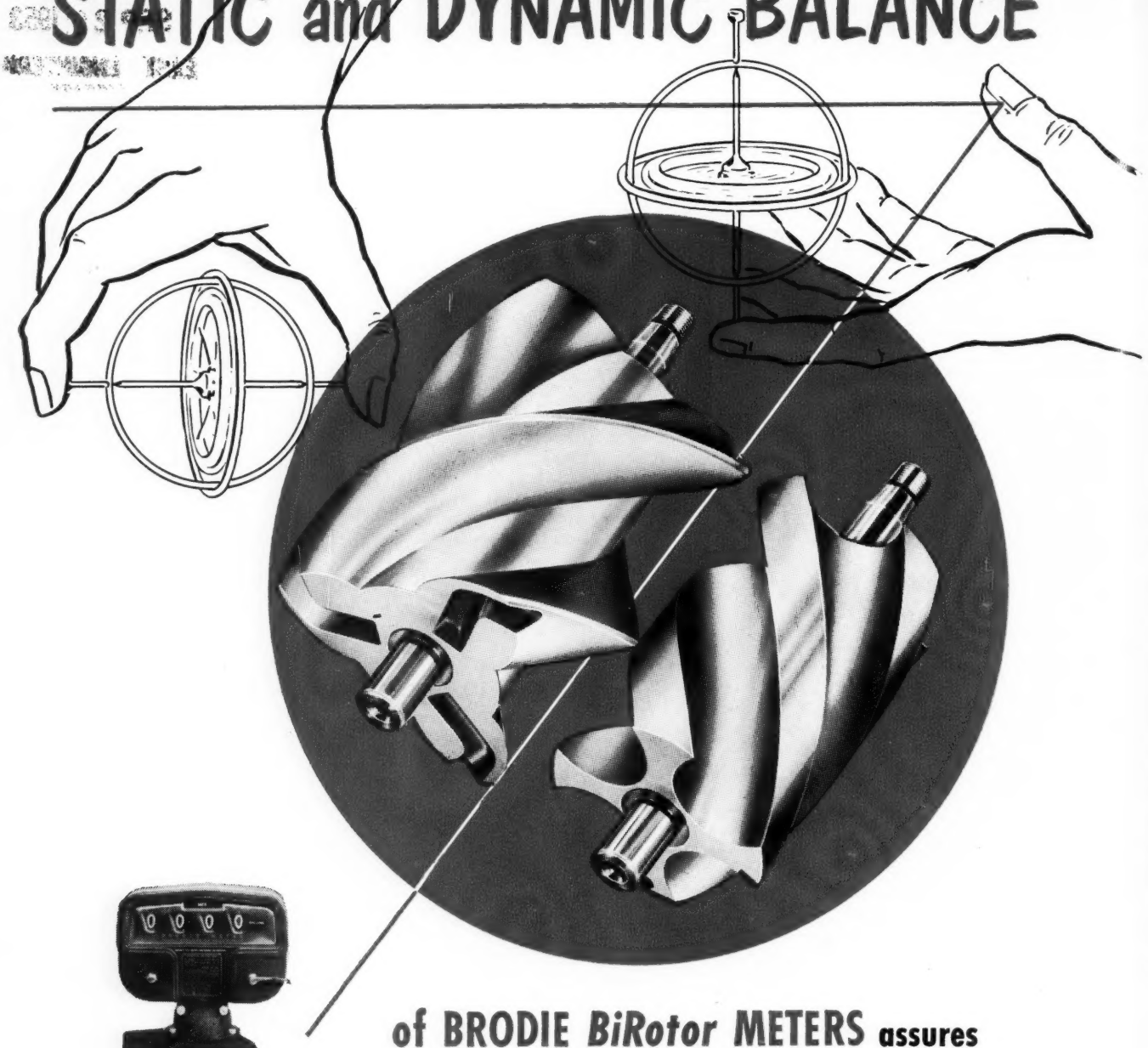

of BRODIE *BiRotor* METERS assures both initial and continued accuracy — smooth continuous delivery — longer continuous service

It's not only *initial* accuracy—but also *continued* accuracy that counts. You get both with Brodie *BiRotor* Meters—

- **plus less wear, maintenance and repair**
- **plus longer trouble-free operation and service life**

For fully balanced performance, specify Brodie *BiRotor* Meters—they're made accurate to stay accurate.

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SEPTEMBER fueloil & oilheat 1953

VOLUME 12 NUMBER 9

CONTENTS

SUBJECT	PAGE	AUTHOR
Conservation—America's Lifeline	43	
Vaporizers build fueloil Load	45	CHARLES BURKHARDT
Oilheating on Wheels	47	ROBERT GRAY
Designing perimeter Heating	50	
Everybody sells	53	
Servicing central cooling Units	53	MAURICE R. EASTIN
Tips on how to lose Sales	56	
Radiant glass heating Panels	60	
General Electric Controls	61	J. W. SCHULZ
Tight check Valves	65	HERBERT M. COWAN

COMMERCIAL - INDUSTRIAL SECTION:

Fifteen Years of Savings	68	LANSING HORST
Central station Heating in Chicago	74	
Educating a power plant Owner	170	

NEWS

Iowa space heater Use	22
Northwest Farmers buying Plans	22
New England OHI Schools start	24
Freeze in gas Heating seen possible	26
API reprints oilburner Booklet	26
Honeywell's Round Thermostat	52
1952 Heating oil Sales	58
OHI reports comm.-ind. burner Shipments	160

DEPARTMENTS

6	Names in the News
10	Editorial Leaks
12	Oilheating Trends
20	Government on Fuels
28	Industry Groups
77	Readers' Problems
84	Manufacturers' Activities
107	New Products
155	Everyday Snags

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Among other things . . .

The cover picture this month shows the new oilburner assembly line started in July by Wayne Home Equipment Co., Ft. Wayne, Ind.

Then the first feature can be of a lot of practical use if you want to study it and change it around to suit local conditions. It's a speech that you can give at local civic clubs or other community gatherings during Oil Progress Week in October. Those groups like to observe special occasions so here's your chance.

There's an extra large number of feature articles this month, partly because it's a large book and partly because we had fewer of the short news and department items, so had to raid our reserve of main line stuff to fill. Every department of your business . . . product, selling, servicing, engineering and fueloil all get into the act.

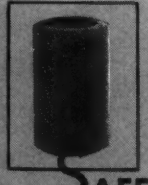
Give your sales a boost with this profit-maker line

Klemm

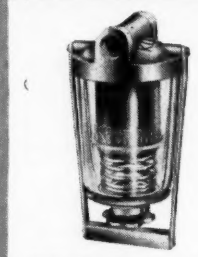
FUEL OIL FILTERS

- Better Looking—Easy to Sell and Install
- Exclusive Re-Cleanable Chemistone Elements
- Correct Model for Every Requirement

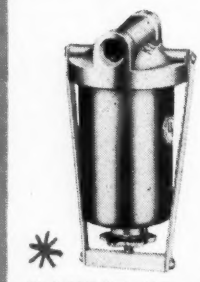
Yes, here's an oil filter line with plenty of genuine selling features. Klemm Fuel Oil Filters combine functional modern styling with safe, efficient, economical performance. Klemm Filters are just that—*filters not strainers*—assuring permanent trouble-free operation. Unique Klemm Filter servicing requires no tools . . . Chemistone element is quickly cleaned, restored to duty. And remember—Klemm Filters are attractively priced to sell—with real profit-maker mark-ups for you!



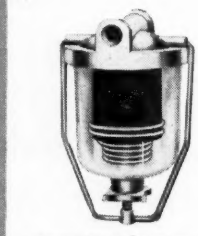
CHEMISTONE—"Heart" of every Klemm Filter, traps all sediment, rust, water, other foreign matter . . . keeps fuel oil clean!



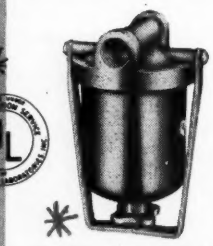
Model FF-401G—¼" opening.
Model FF-430G—⅜" opening.
Capacity: Approx. 50 gal. per hour.



Model FF-401—¼" opening.
Model FF-430—⅜" opening
Same as above, but metal bowl.



Model JR-60—¼" opening.
Model JR-62—⅛" opening.
Capacity: Approx. 10 gal. per hour.



Model JR-80—¼" opening.
Model JR-82—⅛" opening.
Same as above, but metal bowl.

SAFETY IS NO ACCIDENT

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DIVISION OF
KLEMM AUTOMOTIVE PRODUCTS COMPANY
1721 North Damen Avenue, Chicago 47, Illinois

EXPORT: Guiterman Co., Inc., New York 4, N. Y.

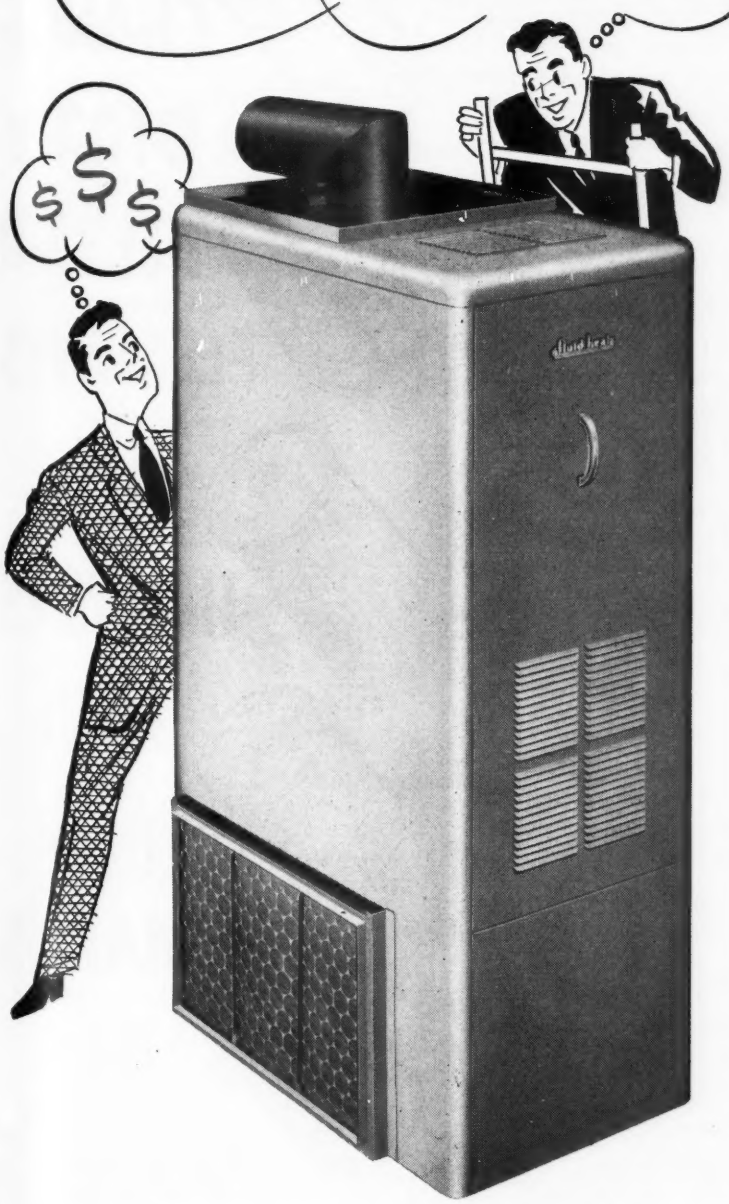
Names in the News

Allan F. Reif, after thirty years as active head of Reif-Rexoil, Inc., Buffalo 3, has retired from business. His corporate interest has been sold to his brother Charles A. Reif who is now president of the company. Mr. Reif's immediate plans include an extended cruise.

H. F. Brundage, president, The Brundage Co., Kalamazoo, Mich., was recently elected president of the Kalamazoo School Board. Voters of the City of Kalamazoo elected Brundage to the School Board in 1950. Brundage is a lifelong citizen of Kalamazoo. He founded the company that bears his name. His business and administrative experience is expected to facilitate greatly an extensive long-range school building program which the City of Kalamazoo plans to undertake.

T. H. (Ted) Smoot has taken the national distribution of comfort air-conditioning systems for Primor Products, Inc., Adrian, Mich., designers and manufacturers of central air conditioning systems. He will work with manufacturers in the application of the com-

This NEW fluid heat is a "natural" sales blazer...



HERE IT IS, the newest addition to the famous Fluid Heat line, the SU-75 . . . another "natural" sales blazer . . . another profit maker. Three features make this new SU-75 a "natural" for new homes or for modernizing many existing heating systems.

FIRST is its design. Now, with the SU-75, installation is easier and less costly in any location. Design permits flue to be mounted in 8 positions. Filters can be mounted on bottom or either side. Units are accepted for "Zero Clearance." Two unit capacities are available . . . 75,000 and 100,000 BTUs/hr. All in all, the SU-75 makes for unlimited location flexibility. Shipped completely assembled and wired. Every home owner and builder is your likely prospect.

SECOND is Fluid Heat's beauty. Eye-catching, colorful appearance . . . all round corner construction . . . unit compactness . . . here are real selling points for you in contacting builders, because, in turn, these points are selling points for them. Make customers out of home owners and home builders, alike.

THIRD is economy. Fluid Heat's exclusive "Dua-Flo" Combustion Chamber is the latest and most advanced in design. Flame direction up and down, plus all around heat absorption surface means that Fluid Heat can offer the utmost in economy . . . the most heat from every bit of fuel. You know what a sales-clincher that is with today's cost-minded buyers.

There it is, another money-making item. And a worthy companion to all the other units in the Fluid Heat line. So make the most of it. Feature the SU-75. And show, talk, sell the entire Fluid Heat line. And remember, Fluid Heat is constantly pre-selling your prospects through national advertising. Just watch your business and profits grow.

For full details on the new SU-75, write to the address below.

fluid heat
AUTOMATIC HEATING EQUIPMENT
"WORLD'S ECONOMY CHAMPION"
Division of ANCHOR POST PRODUCTS, INC.
6700 Eastern Avenue, Baltimore 24, Maryland
also Colbaugh Street, Red Oak, Iowa

A FLUID HEAT UNIT FOR EVERY HEATING PROBLEM

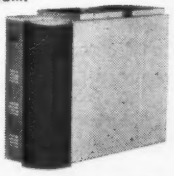
Famous Fluid Heat Pressure Burners. Four models, with firing rates from 7/10 to 12 gallons per hour.

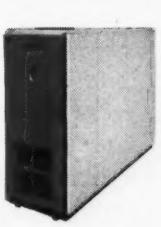
Famous Fluid Heat Wall Flame Rotary Burner. Two models with firing rates from ½ to 4½ gallons per hour.

OIL-FIRED UNITS

Famous Fluid Heat Boiler Burner Units. Six models, rated from 300 to 1090 sq. ft. of standing steam.

Famous Fluid Heat Warm Air Furnaces. Seven models, from 70,000 to 335,000 B.T.U. per hour.





GAS-FIRED UNITS

New Fluid Heat Gas-Fired Warm Air Furnaces with rated inputs of 70,000 to 140,000 B.T.U. per hour.

Single-port, self-piloting Fluid Heat Gas Conversion Burners. Rated inputs of 75,000 to 300,000 B.T.U. per hour.

ELIMINATE This...

OUTSIDE BAG FROM YOUR PRESENT CLEANER

...Get the

SOOTMASTER

Filter Unit

with THROW-AWAY BAG!

• *Order from your jobber*

SOOTMASTER Filter Unit, with THROW-AWAY Bag, eliminates outside bag on your G. E. Cleaner, gives you double protection against leaks and blowouts Installed into your present cleaner in few minutes.

$17.75 Complete with 10 throw-away bags and quick-release tie-cord.

• *Write today for literature*
• *Jobbers' inquiries invited*

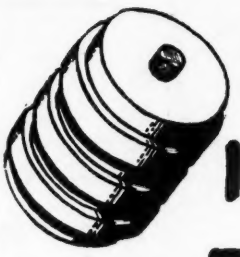
MASTER-CRAFT SUPPLY CO., INC.
HAVERSTRAW, NEW YORK

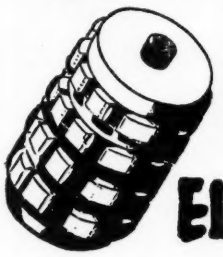
Originators and Manufacturers of THROW-AWAY FILTER BAGS for Commercial Vacuum Cleaners

pany's products to existing lines of boilers and furnaces, and assist in installation and service training. Smoot, until recently with Lennox Furnace Company, formerly was chief engineer for Anchor Post Products Company. He started his career in oilburning with the Socony Burner Company in the early 1920's. Well known in the oilheating business, he has been prominent in technical activities of various associations. Primor, organized recently by men experienced in the manufacture of airconditioning equipment, is specializing in central comfort cooling systems for boiler and furnace manufacturers.

O. F. Minor, New York division sales manager, Shell Oil Co., New York 20, has been appointed to the newly-created post of assistant general sales manager for the Midwest. Also, *N. H. Miles,* Cleveland division sales manager, has been appointed to the new post of assistant general sales manager for the East Coast. Minor joined Shell in 1929 as a clerk in St. Louis. He has also served as district manager at Springfield, Ill., as public relations manager, and as assistant to the marketing vice-president. Miles began his Shell career at Boston, also in 1929. He was district manager at Richmond, Va., and Baltimore, Md., and sales manager of the Detroit division prior to his appointment at Cleveland. *C. F. Martineau,* Detroit division sales manager, succeeds Minor as New York division manager.

Joseph R. Arden has been elected vice-president in charge of sales, Manville Boiler Co., Inc., New York. Previously, Arden was sales manager of Petroleum Heat and Power Company's Philadelphia branch and prior to that was factory field sales representative and later general service manager of all of Petroleum Heat and Power Company's branches. He also served with the Delco distributor organization in Washington, D. C.





NOW IS THE TIME TO CHANGE DIRTY FILTER ELEMENTS — SID HARVEY'S HAS ALL MAKES ALL MODELS

Make Sid Harvey's your headquarters for every replacement part—new or rebuilt—oil—gas—stoker.

SID HARVEY INC.
VALLEY STREAM, NEW YORK

25 SID HARVEY STORES
Order from the one nearest you.
Mail orders filled the same day as received.

V&E

SCHUYLKILL HAVEN, PA.

STEEL

BUILT TO LAST
A LIFETIME
UNDER ANY
CONDITIONS

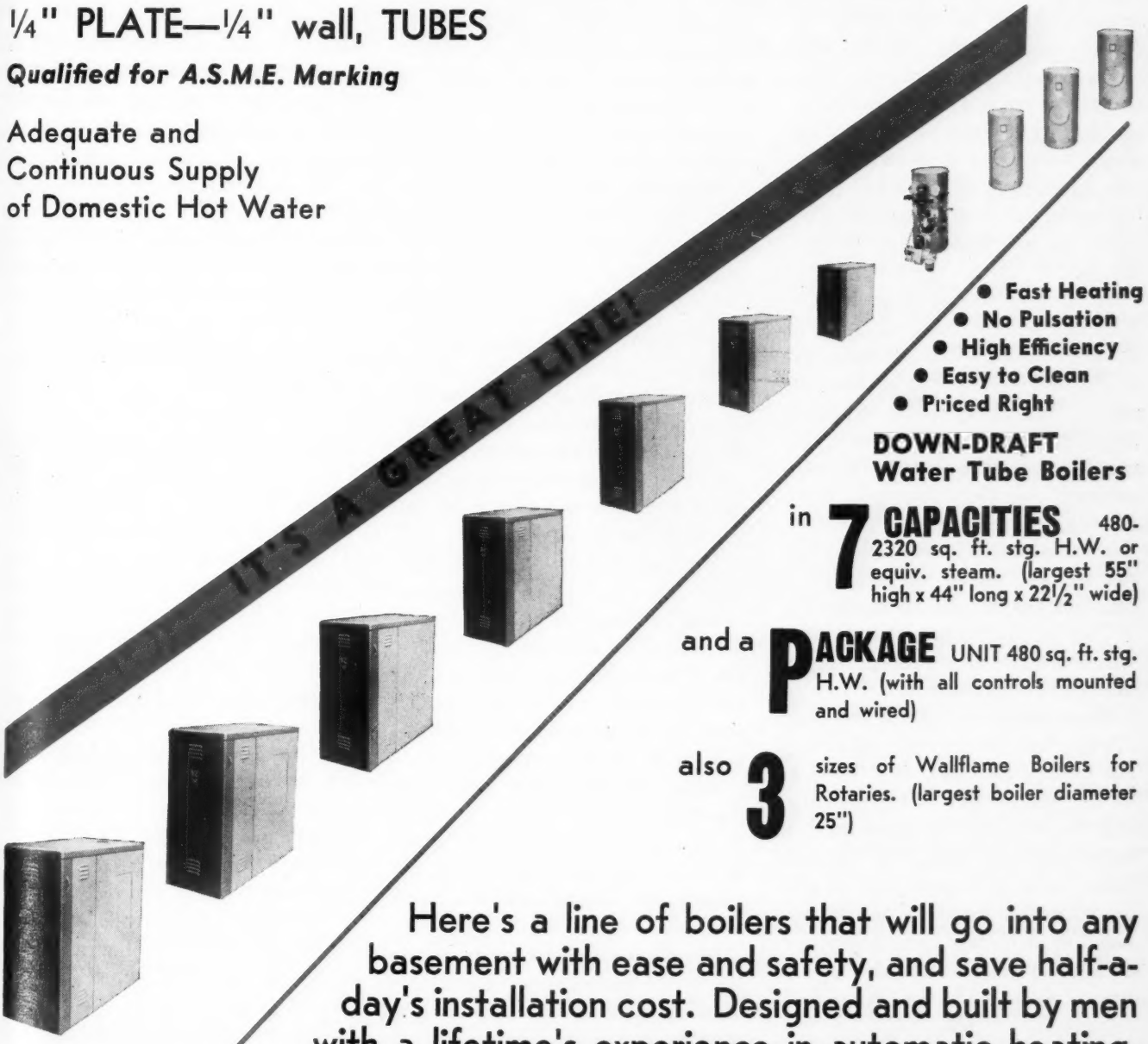
Water Tube BOILERS

FOR STEAM OR HOT WATER

¼" PLATE—¼" wall, TUBES

Qualified for A.S.M.E. Marking

Adequate and
Continuous Supply
of Domestic Hot Water



- Fast Heating
- No Pulsation
- High Efficiency
- Easy to Clean
- Priced Right

DOWN-DRAFT Water Tube Boilers

in **7 CAPACITIES** 480-2320 sq. ft. stg. H.W. or equiv. steam. (largest 55" high x 44" long x 22½" wide)

and a **PACKAGE** UNIT 480 sq. ft. stg. H.W. (with all controls mounted and wired)

also **3** sizes of Wallflame Boilers for Rotaries. (largest boiler diameter 25")

Here's a line of boilers that will go into any basement with ease and safety, and save half-a-day's installation cost. Designed and built by men with a lifetime's experience in automatic heating.

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Editorial Leaks

SOME AMUSING MISCONCEPTIONS get around, like the one Fred Griffin of Seattle sent us the other day. His folks had been putting pressure on a delinquent oil buyer, and in desperation the customer wrote him to call off the dogs, with this conclusion to his plea, "However, understand that you won't lose one penny on my account as you are taken care of through your Federal Income."

The incident would be humorous if it weren't serious. There are agencies about the country that are spreading to all listeners the gospel that business men are sure of big profits and fortified against losses by a benevolent, paternal Government. They're the malcontents, whether you call them IWW's, Communists or whatever. One radio program out of Washington attacks business in every form that comes to its nefarious imaginings.

They harp on business practices that were abandoned fifty years ago, but the uninitiated don't know it.

These things are mighty annoying . . . they heat you up under the collar, but perhaps they shouldn't. To look on the positive side rather than the negative, we could well recognize that we've had this scum, this "lunatic fringe" with us in some guise for 175 years and that America is so basically sound in its concept that all they can do is annoy us. They can do that for sure.

❖

COLUMNIST HERB CAEN, writing in a San Francisco daily brings this "Tale of the Town":

"Just after Pearl Harbor, the president of the Japanese Chamber of Commerce here—Tsutomo Obana—was arrested by the FBI. Obana's friends went to an influential San Francisco attorney, Russ Westover, Jr. (incidentally the son of the creator of 'Tillie the Toiler') and asked him to help. 'It'll cost you $1,000,' said Westover. The Japanese could raise only $700, but Westover went to work on the case anyway. His mission, including trips to Washington, was an apparent failure.

"Obana was interned, and at the end of the war he moved to Japan.

"Westover, who is now president of the Ray Oil Burner Co., forgot all about the case until a few days ago. Into his office strode Yasusuke Katsuno, Japan's Consul General. 'This,' he said, handing Westover a check for $300, 'is from my Government. We understand it is owed to you for your work on behalf of Mr. Obana.'

"Westover promptly endorsed the check and mailed it to Obana, and hopes to forget about the case all over again."

❖

BECAUSE THE HOTTEST subject in fueloil marketing is margins, we're always interested in outside viewpoints like the one that appeared last month in the Pendleton "East Oregonian." After cussing out the oil industry in general and at length for raising prices, it has this to say for the marketers:

"No responsibility for the high prices you pay for the gasoline and fueloils you buy can be pushed upon the wholesale distributor. He is getting almost exactly the same commission (in some cases less) in 1953 than he got 15 years ago on the products he distributes for the big oil company."

After describing the arguments about big margins being unnecessary because volume has grown, and the distributors' comeback that "so has the majors," this editorial castigates big oil men, *per se*.

Margins are right or wrong to the extent that they accurately reflect costs of doing business by the fueloil distributor. A couple of years ago we asked a large sample of fueloil distributors throughout the country if, considering all competitive conditions, they thought their margins adequate. A large majority voted Yes. We'll try it again, next month perhaps.

But among those not satisfied, most of the complaints were justified through lack of recognition of local costs.

In our January issue was an analysis of operating costs and margins based on returns from several hundred fueloil distributors in all parts of the country.

For those with bulk plants the average margin was 3.05¢. Using the driver wage rate as the best single index to operating costs in any community, we found that this averaged for the group $1.62 an hour.

From this we developed a rough rule of thumb that margins should be the hourly wage rate times 188 and then expressed in cents per gallon. For example, if your driver wage is $1.80 an hour, multiply this by 188 and you get 33840, which we'll express in cents as a 3.38¢ margin.

We don't say that this is the right margin or not, but the formula will make your chance for a profit about equal to the average of the industry as a whole. And the companies whose figures were used in those averages earned net last year .85¢ a gallon before income taxes.

❖

IT WAS 50 YEARS AGO, the summer of 1903, that the graduating class of PS 34 on New York's lower east side posed in a group for a photograph. There were 61 present.

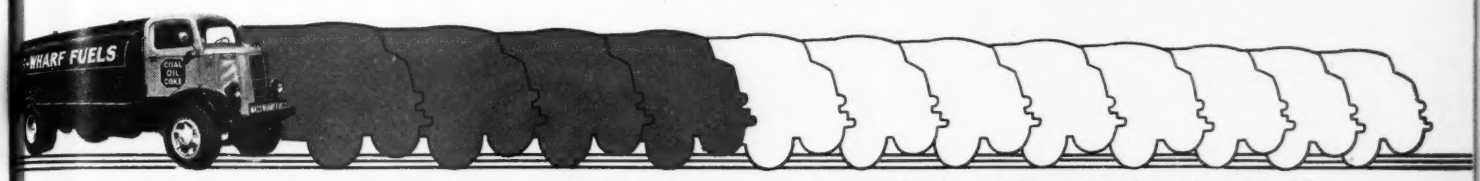
Last month the surviving members had a 50th reunion, 26 of them. The others were scattered or dead. The New York *World-Telegram* and *Sun* featured a page to the story and photographs of those who came together at the Grand Street Boys Club. Missing was Horatio Alger, Jr., who had supplied the class motto, "Industry plus honesty equals success."

One of the photographs in the newspaper story was of Benedict Mandelburg, president of Manville Boiler Co. Several prominent men were in the group, including Nathaniel Shilkret, the composer.

The lower east side of Alger's day is not the same now. Every year it gets more respectable with river drives, large apartment developments and frequent garbage collections. Some of the buildings are getting Manville boilers and most of the apartments have Shil-

Bob Gray

MASS-WHARF's Entire Fleet Now Has Automatic Control of Fuel Oil Pumping Speed with Scully THROTTLE REGULATOR*



First One Tried, June 8 **Four More Installed, Aug. 6** **Balance of Fleet Equipped, Aug. 10**

"Anything that promises to increase the efficiency of our fuel oil delivery and cut operating costs at the same time gets our attention. That's why we were quick to make a test installation of Scully's Automatic Throttle Regulator. The fact that we followed with full fleet installation tells you just how helpful we expect it to be in the busy days ahead." P. W. Rogers

PRESIDENT
MASS-WHARF COMPANY
1 Harvard Street, Cambridge, Mass.

How Scully Throttle Regulator takes the nuisance and guesswork out of pump speed control.

1. Eliminates hand throttle adjustment.
2. Eliminates any need to set up carburetor beyond normal traffic idle.
3. Eliminates all needless motor racing.

What It Does For You

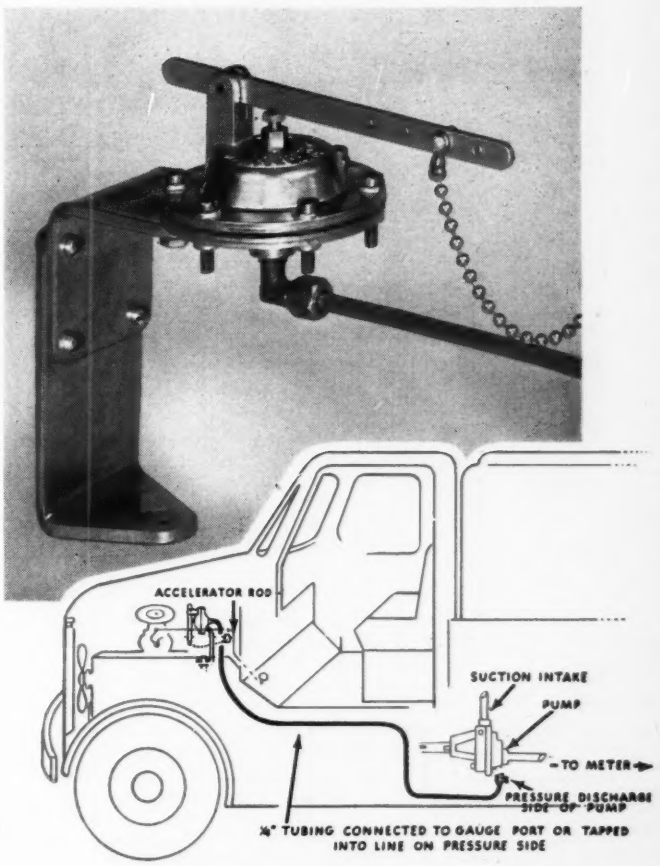
When power take-off is engaged, Scully Throttle Regulator automatically adjusts engine speed to proper RPM for maximum pump efficiency.

If compartment runs dry, engine automatically returns to idling speed.

At transfer to new compartment, engine speed automatically increases to restore proper pump speed.

When power take-off is disengaged, engine speed decreases to normal traffic idle.

It does not affect throttle operation during driving.


ACCELERATOR ROD
SUCTION INTAKE
PUMP
TO METER
PRESSURE DISCHARGE SIDE OF PUMP
¼" TUBING CONNECTED TO GAUGE PORT OR TAPPED INTO LINE ON PRESSURE SIDE

Easily installed under engine hood near carburetor. Takes up only 4 square inches of space.

How To Get Yours

See your equipment supply jobber or write us direct. We will ship you device, mounting brackets and all installation parts for $29.50 f.o.b. Cambridge.

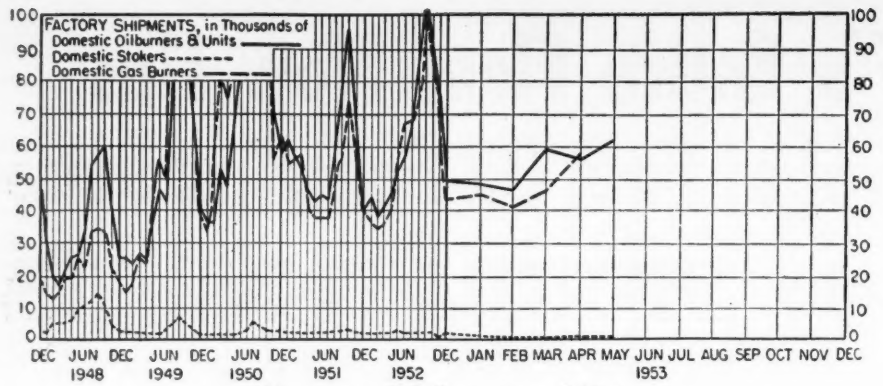
FUEL TRUCK EQUIPMENT JOBBER INQUIRY INVITED

SCULLY SIGNAL COMPANY

76 First Street, Cambridge 41, Mass.
Makers of VENTALARM® Signal Products

MEMBER OHI OIL HEAT INSTITUTE OF AMERICA

U. S. Patent No. 2,634,681. Foreign Pats. Pend.

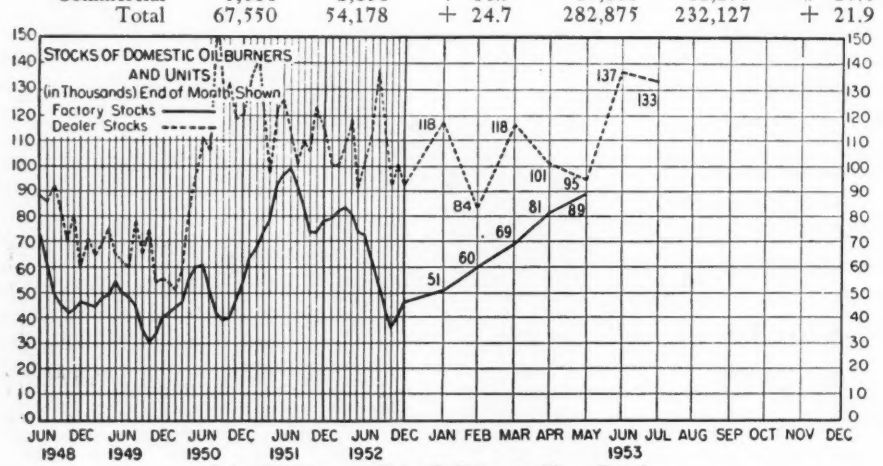

FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Stokers
Domestic Gas Burners
DEC JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1948 1949 1950 1951 1952 1953

Shipments of Oilburners and Units

(Including Exports)

Adjusted to include manufacturers other than the 145 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	MAY			FIVE MONTHS		
	1953	*1952*	*Percent Change*	*1953*	*1952*	*Percent Change*
Conversion	45,066	34,060	+ 32.3	186,704	149,412	+ 25.0
Boiler Units	4,823	5,051	— 4.5	20,533	16,859	+ 21.8
Furnace Units	14,580	12,431	+ 17.3	60,014	53,603	+ 12.0
All Domestic	64,469	51,542	+ 25.1	267,242	219,874	+ 21.6
Commercial	3,081	2,636	+ 16.9	15,633	12,253	+ 27.6
Total	67,550	54,178	+ 24.7	282,875	232,127	+ 21.9



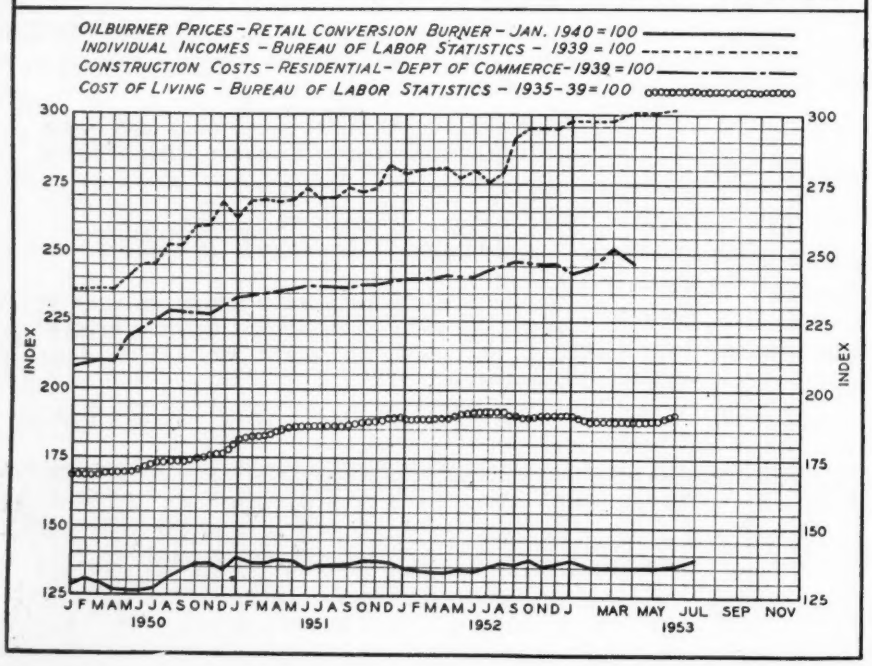
July Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
July	$320	$710	$636
June	317	706	636

Price Index: Conversion Burners: January 1940 is 100%

	WHOLESALE				RETAIL			
July	139.6	Six months ago	144.7		July	137.9	Six months ago	136.1
June	140.8	Year ago	150.6		June	135.3	Year ago	137.0

OILBURNER PRICES COMPARED TO GENERAL INDEXES


OILBURNER PRICES - RETAIL CONVERSION BURNER - JAN. 1940 = 100
INDIVIDUAL INCOMES - BUREAU OF LABOR STATISTICS - 1939 = 100
CONSTRUCTION COSTS - RESIDENTIAL - DEPT OF COMMERCE - 1939 = 100
COST OF LIVING - BUREAU OF LABOR STATISTICS - 1935-39 = 100
INDEX
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1950 1951 1952 1953

Oilheating Trends

INSTALLATIONS of domestic oilburners and units during July are estimated at 62,933 showing a rise of 15% over the 54,860 in the same month last year. The July installations were divided: New Homes, 19,423; replacements of old oilburners, 5,969; conversions from other fuels, 37,541.

Total installations for the first seven months of the year were approximately 315,259. A year ago they were 308,637, so for the first time this year we have a plus comparison for the total period. On the other hand this 2% increase for the seven months in retail installations looks low considering the fact that factory shipments for the first five months (latest official data) were 21% above 1952. It is going to be very interesting to see how this works out as we come into the peak season.

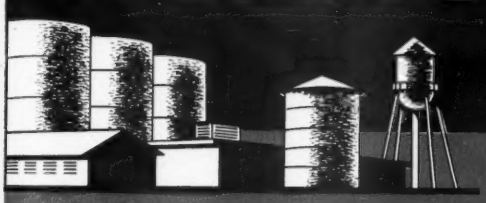
BURNER STOCKS: Stocks of domestic oilburners and units in dealer hands on August 1 were approximately 133,147 compared with 113,299 on the same date last year. On July 1 this year they had been 136,951. The August 1 stocks were divided: Conversion oilburners, 77,597; boiler-burner units, 19,615; furnace-burner units, 35,953.

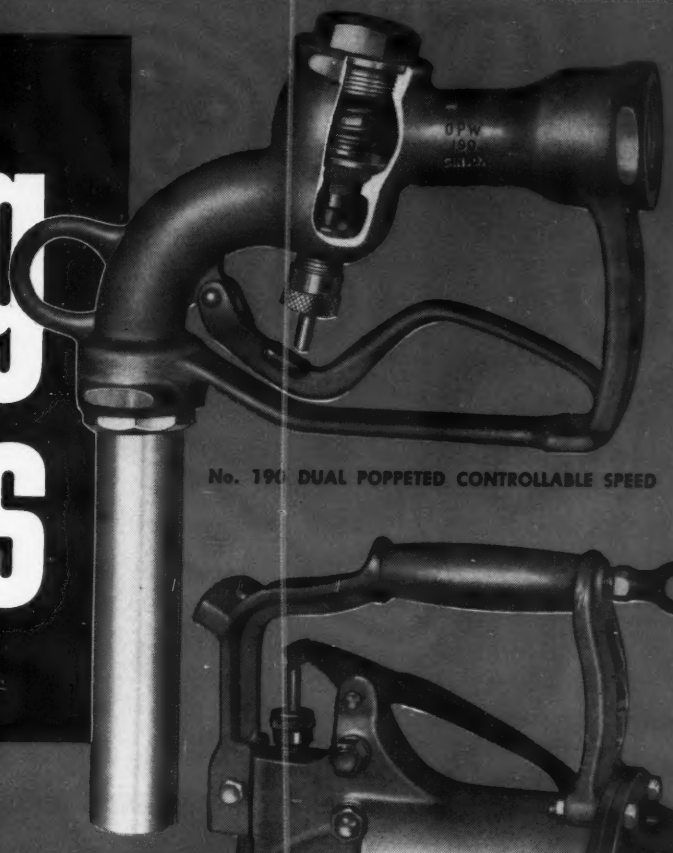
Factory stocks on May 31, latest available data, were 89,024 compared with 81,365 the previous month, and with 76,072 at the end of May last year.

TANK STOCKS: Consumer oil tanks in dealer hands on August 1 were approximately 83,560, compared with 88,134 the previous month and with 124,347 on August 1 last year. Dealers apparently are pursuing a new policy on this point since the stocks have been running much lower this year even though total sales are slightly up. Apparently they are very plentiful at all industry levels and not much inducement is being offered to buy large quantities.

The average price paid by dealers for a 275 gallon tank was $34 in July, which is $1 lower than either June or May. By sections of the country the July average price was: New England,

fueling nozzles





No. 190 DUAL POPPETED CONTROLLABLE SPEED

No. 620 HI-PRESSURE TYPE

No. 1190 HIGH CAPACITY
AUTOMATIC SHUT-OFF NOZZLE

No. 220 GRAVITY LO-PRESSURE TYPE

OPW has designed these liquids dispensing nozzles in a wide variety of sizes to assure you of having the right nozzle for a fast, fully-controlled, dependable operation regardless of the delivery condition.

EACH engineered for high capacity, wide flow range with minimum turbulence; easy shut-off, with no product surge . . . *ALL*, for minimum weight, perfect balance, durability and long service life.

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$31; Mid-Atlantic, $34; Midwest, $31; Pacific Northwest, $43. The August 1 stocks were divided by sizes as follows: 220-275 gallon, 75,949; 550-675 gallon, 4,865; 1,000 gallons or larger, 2,746.

NO. 4 FUELOIL: Following the questions on No. 5 oil last month some of the reporting dealers asked us to look into No. 4 fueloil. Officially No. 4 oil today is a very light residual . . . it is the old No. 5 with a low enough pour point that it does not have to be preheated. There are still some of the smaller refineries in the Midwest putting out a heavy distillate that they call No. 4 so the two types would be included in the answers to the questions.

It was surprising to learn that as many as 18% of the reporting dealers use No. 4 oil in gun burners. Some of these burners are probably of the Cleaver-Brooks type but some of them are the more conventional low pressure gun burners. Every section except the Pacific Northwest reported the use of No. 4 in gun burners and the percentage in each section was relatively similar.

Asked what is the retail price of No. 4 in their markets the average from all sections was 9.67¢. A few of the Midwest marketers reported prices ranging between 12.2¢ and 13¢, indicating that in those instances they were working with a distillate that they called No. 4.

The reporting group was then asked if they think it a practical idea to promote the use of a fueloil this heavy for residential burners. Only 12% think it a good idea. This is a surprise since 18% now handle this oil in gun burners. The implication is that much of it is used in light commercial work rather than residential.

GAS COMPETITION: More than two-thirds of the reporting dealers say that gas competition this year is more troublesome or tougher than they had it last year. To relate this into figures those reporting from all sections of the country estimate the ratio of oilheating to gasheating installations in their markets this year to be about 65-35. In the same cities last year they estimate that the ratio was 69% oil and 31% gas.

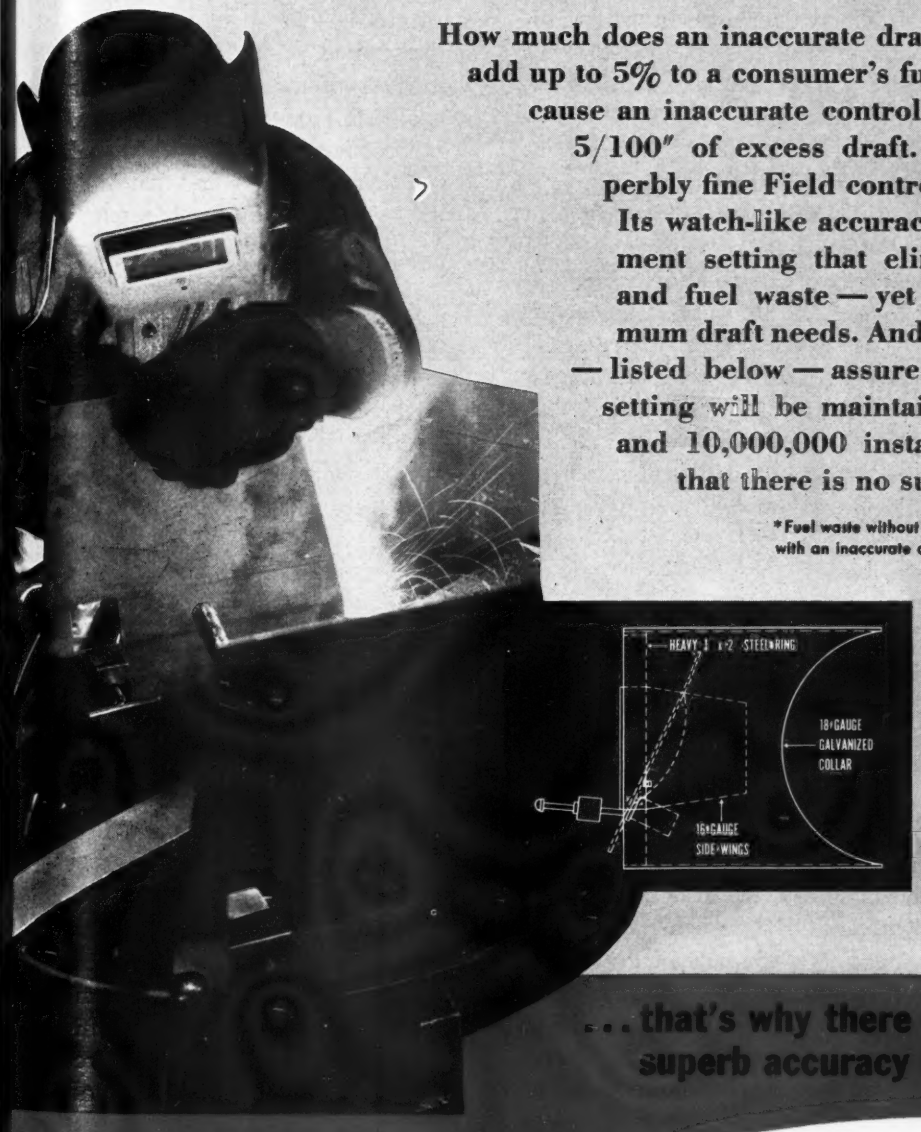
Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
July		7 MONTHS			July		7 MONTHS	
1953	1952	1953	1952		1953	1952	1953	1952
34	42	161	242	Albany, N. Y.	..	..	..	..
53	169	616	969	Baltimore, Md.	256	257	2568	2233
..	..	..	..	Binghamton, N. Y.	8	6	87	62
..	..	..	..	Bloomfield, N. J.	30	18	198	59
..	..	..	..	Boston, Mass.	15	178	206	379
136	75	695	414	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	40	34	314	357
38	36	133	350	Columbus, O.	..	..	..	..
..	..	..	..	Des Moines, Ia.	432	72	1655	448
..	594	..	4432	Detroit. Mich.	303	469	1943	2642
53	43	245	252	Elizabeth, N. J.	2	11	25	43
37	50	190	231	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich. Conn.	24	60	..	234
..	..	..	..	Hackensack, N. J.	..	10	..	117
52	79	..	635	Hartford, Conn.	..	..	..	..
..	..	..	..	Hudson County, N. J.	..	..	..	..
50	55	..	256	Irvington, N. J.	3	1	21	19
..	..	..	..	Lynn, Mass.	19	14	..	122
..	22	..	202	Meriden, Conn.	..	..	..	..
801	567	3767	2405	Milwaukee, Wisc.	681	342	2029	1750
23	37	..	571	Minneapolis, Minn.	75	88	..	627
24	24	126	147	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	5	0	54	37
38	38	192	180	Mt. Vernon. N. Y.	..	..	..	..
..	203	..	1071	Newark, N. J.	..	..	..	..
44	89	379	715	New Bedford, Mass.	..	..	..	..
58	52	247	381	New Haven, Conn.	..	..	..	..
..	..	..	..	New Orleans, La.	..	..	..	..
..	34	..	187	New Rochelle, N. Y.	66	19	293	153
..	6062	..	52360	New York City (total)	..	..	..	..
1804	5452	..	48524	Brooklyn-Queens	..	..	..	..
467	610	..	3836	Manhattan. Bronx, Rchd	..	..	..	..
46	25	443	444	Norfolk, Va.	54	57	435	861
..	..	..	..	Oakland, Calif.	..	..	..	..
30	66	246	348	Omaha, Nebr.	73	211	..	707
25	25	109	118	Orange, N. J.	1	5	14	14
19	18	122	147	Passaic, N. J.	..	..	..	..
70	85	327	429	Paterson, N. J.	25	16	107	120
585	593	..	4135	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	9	14	93	107
38	52	282	237	Portland, Me.	19	7	100	69
427	474	2063	2566	Portland, Oreg.	216	144	1316	854
..	14	..	93	Poughkeepsie, N. Y.	..	..	..	..
127	57	375	665	Providence, R. I.	..	17	..	115
..	..	..	..	Reading, Pa.	6	7	42	44
20	17	172	234	Richmond, Va.	37	58	327	371
..	55	..	290	Roanoke, Va.	..	..	..	..
300	358	1534	1747	Rochester, N. Y.	..	..	..	..
17	16	110	94	Rockville Center, N. Y.	5	7	68	40
26	16	179	163	Salem, Mass.	9	9	49	36
159	187	698	904	St. Louis, Mo.	24	50	198	320
12	31	137	221	St. Paul. Minn.	134	91	729	688
5	20	121	230	Schenectady. N. Y.	..	..	..	..
..	..	..	..	Seattle. Wash.	158	139	1063	1139
..	..	..	..	Springfield, Mass.	108	52	686	465
35	66	..	391	Stamford, Conn.	..	..	..	..
..	4	..	44	Syracuse, N. Y.	..	40	..	301
..	..	..	..	Trenton, N. J.	..	5	..	103
..	..	..	..	Utica, N. Y.	12	13	67	91
101	67	426	636	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	28	15	189	258
32	30	153	160	White Plains, N. Y.	41	16	159	87
111	61	451	380	Wilmington. Del.	15	5	80	140
149	189	726	967	Worcester, Mass.	..	..	..	..
121	72	453	373	Yonkers, N. Y.	..	..	..	..
4204	4304	15180	16445	*Totals*	2928	2485	15115	13882
—2.3		—7.7		*Percent Change*	+17.8		+8.9	

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

We know, of course, that total central heating installations with oil and gas last year were almost balanced in number with oil having a slight lead. When this reporting group shows almost a two for one ratio in favor of oil in their cities it should be noted that the reporting companies are located in the areas of the country where oilheating is relatively popular. In other words, none of the reporting companies is located in the states stretching across the South from Alabama to Southern California, prin-

for every 1/100" of excess draft eliminated by Field accuracy there is a 1% savings in fuel*



How much does an inaccurate draft control cost? It can add up to 5% to a consumer's fuel bill every year because an inaccurate control commonly permits up to 5/100" of excess draft. And that's why the superbly fine Field control actually costs least of all. Its watch-like accuracy permits a hair-line instrument setting that eliminates excess draft — and fuel waste — yet never restricts minimum draft needs. And the patented Field features — listed below — assure you that this precise setting will be maintained. A score of years and 10,000,000 installations have proved that there is no substitute for Field quality.

*Fuel waste without any draft control runs up to 20%; with an inaccurate control 5% fuel waste is common.

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. . . that's why there is no substitute for the superb accuracy of a Field Draft Control

1 — Made of heavy materials — Field controls last longer.

2 — Balanced at factory — Eliminating weight variations which could affect control's accuracy.

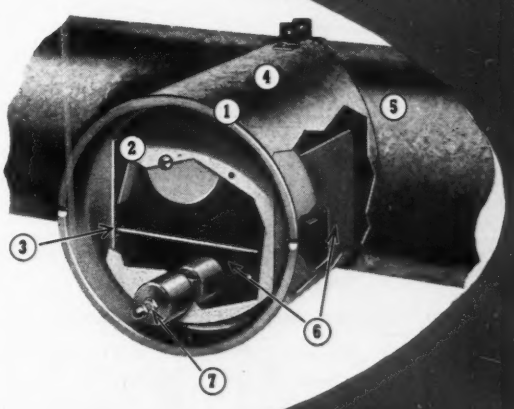
3 — Rocker type hinge pin — Quickly responsive, no friction. No sticking.

4 — Long Collar — No warping or clogging due to heat or soot, no service calls.

5 — Free smoke passage — A Field Control never blocks the flue.

6 — Side wings and fitted gate — More accurate because opening in control increases more uniformly.

7 — Factory adjusted — Set to maintain .06" draft until instrument setting is made.



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AFFILIATES: CONCO BUILDING PRODUCTS, INC.—Brick, Tile, Stone
CONCO MATERIALS HANDLING DIVISION—Cranes, Hoists

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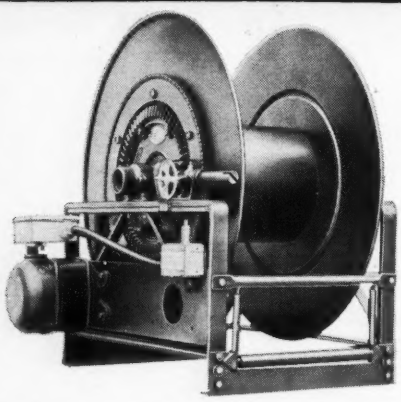

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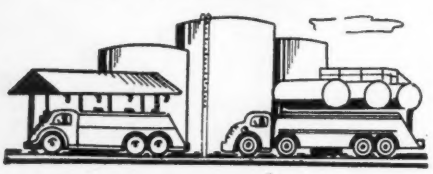

cipally because there is too little oilheating done in those states for the companies to have any considerable interest in the facilities.

When the gas industry shows that its installations nearly equal those of oil this is true largely because they have almost a monopoly in those warm south central and southwest states where gas is cheap and fuel requirements fairly light.

It is quite important, however, to keep our eyes on the devolping gas situation in the northern states where oil has its strength. By sections of the country we find a little variation in this development. For example New England dealers expect that gas will get 20% of the new automatic heating installations this year compared with 15% last year. Mid-Atlantic dealers expect gas to take 45% of automatic heating this year compared with 37% last year. The Midwest is an exception, because the reporting group expect gas to take 43% this year against 44% last year. In the Pacific Northwest they expect gas to take 7% this year compared with 2% last year, and, of course, none of that is natural gas.

Notice that all of the foregoing percentages are based on the impressions of dealers concerning their individual market and they are not based on an actual record of installations. The significance of their figures lies in the impression of the oilheating industry, particularly in New England and Mid-Atlantic areas, that gas is making headway against them.

Rate increases are quite prevalent in the gas industry, with a little more than half of the reporting dealers saying that gas heating rates in their communities have gone up in the past twelve months. This is to be expected more and more in the future because of the pressure to get the prices up at the wells.

BUYING FUELOIL: Slightly more than half of the reporting fueloil distributors from all sections of the country mentioned that they buy all of their fueloil from one source. There is not much difference in the percentages throughout the country, except in the Pacific Northwest where practically every company gets all of its supply from one source.

There have been some very spotty price situations in fueloil during the summer and we find that companies buying here and there in the open market had some important advantages of a temporary nature. Among the whole reporting group 71% of the companies bought all of their oil at regular posted prices for the market while 29% of the companies bought some of their products at bargain rates.

When this was all related to actual gallonage, however, we find that 85% of the volume during the summer months was bought at regular posted prices and 15% was bought below. The area showing the largest per cent of bargain buying was New England and, of course, the Pacific Northwest showed none of it.

The reporting group was then asked how they would rate the wholesale market for fueloil as of August 1. About three-fifths of them call it a firm market and the others rate it as weak.

It is ironic that the greatest impression of weakness is in the Midwest, where 62% rate it that way when, as a matter of fact, that is the only section of the country that is going to have a real job to meet demands this winter without serious price increases. We discussed that situation in our last issue.

SUMMER DISCOUNT: Throughout the East Coast areas the posted prices generally involve a one-half cent summer discount on No. 2 oil and this applies at both the wholesale and retail levels. In the New England and Mid-Atlantic areas it is very interesting to notice that only about two-thirds of the fueloil marketers gave this discount to their customers. We believe that virtually all of these companies received the discount themselves at the tank car or rack buying level and some of them simply took an extra half-cent margin on their summer sales.

The marketers were then asked if they believed that giving discount to consumers resulted in any increase in product being moved at this level. Only one in twenty of the reporting companies believed that the discount was effective for this purpose. The other 95% say that it did not move

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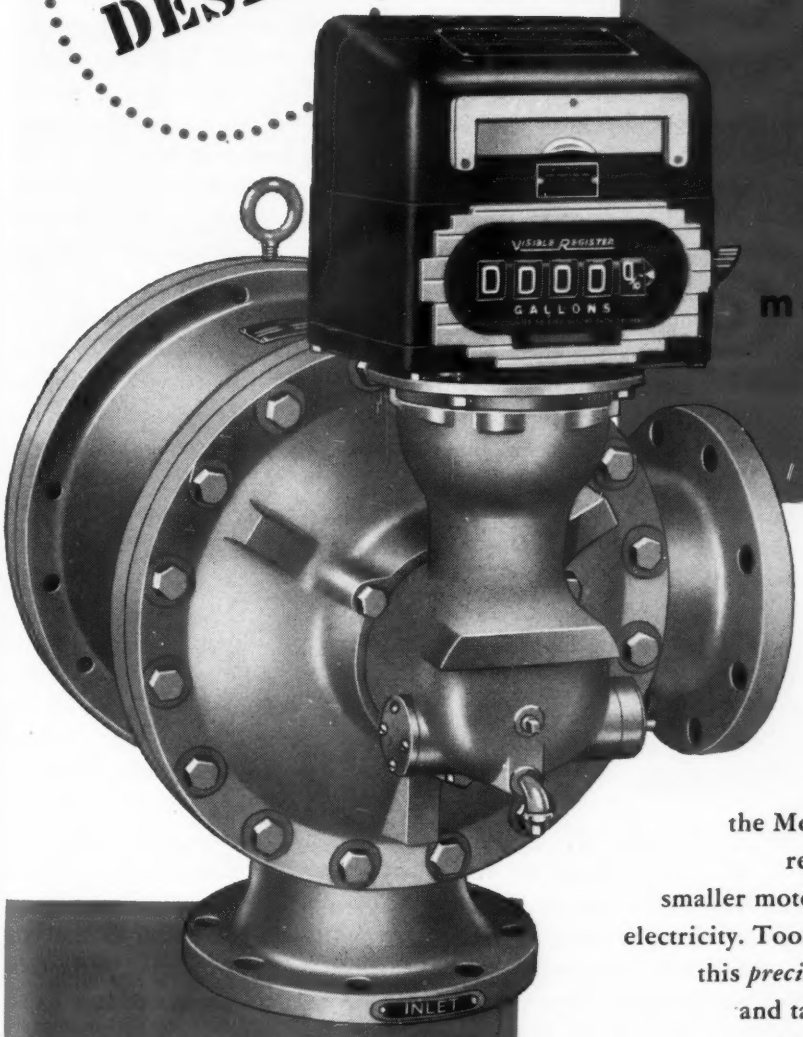

MODEL 6-BLX

In the BLX series of Rockwell Rotocycles we've taken a good meter design and made it even better. Stronger working parts with anti-friction bearings throughout now contribute to an even longer life of precision accuracy. And for existing installations a conversion package is available.

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USE LOWER HP MOTORS —— SAVE ON POWER

When buying meters, keep in mind motors and vice versa. Because the Model 6-BLX Rockwell Rotocycle meter requires less power to turn, you can use smaller motors on your pumps and save money on electricity. Too, you'll save on meter maintenance, for this *precision* meter has the strength to stand up and take it for long periods of time without attention. You get all this *plus* the proved accuracy and free "Flo-ward" operation of Rockwell Rotocycle measurement. Write for bulletin and price list.

AVAILABLE IN ALUMINUM

Where specified the Model BLX Rockwell Rotocycle can be furnished with a cast aluminum case. The lighter weight of this metal makes the meter easier to handle and install—also aluminum is a highly acceptable material for use with high octane and aviation gasoline.

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CLEANS FASTER—No bag to empty, shake or clean.
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an extra gallon of oil. The dealer comments which follow later were practically all on this subject.

FUELOIL STOCKS: Stocks of distillate fueloils at refineries, terminals and in transit east of the Rockies on August 15 were 95,304,000 bbls. This is 14% above the 83,322,000 bbls. on the corresponding date last year, a relatively healthy condition. However, the Midwest still has a real problem. Stocks in District II on August 8 were 29,971,000 bbls. against 30,558,000 bbls. the year before. This is the area showing the fastest growth rate in the nation for oilheating. It is also the area where it is most difficult to increase distillate output in a hurry. It now seems probable that the Midwest will have to bring in product in greater quantity from District III to fill its needs. Someone may take a margin shrinkage on transportation costs.

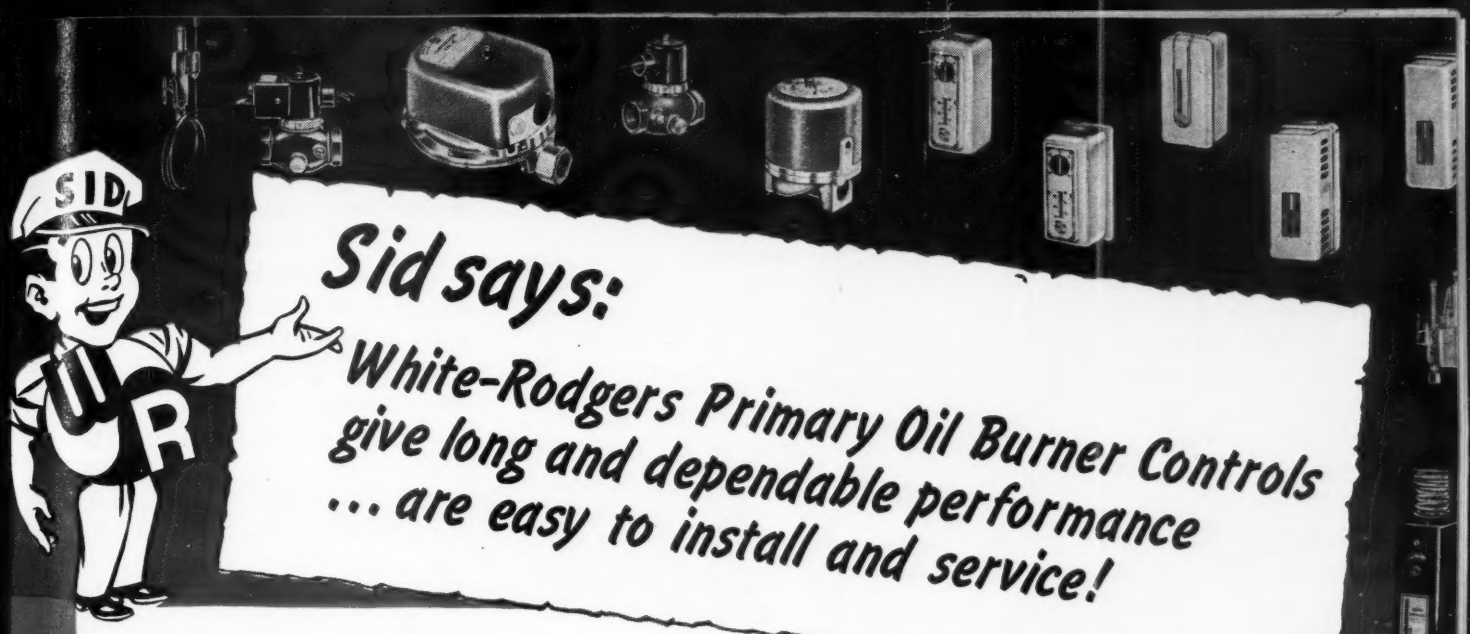
Secondary distillate inventories, as reported by the industry through the Census Bureau, for June 30 were 14,882,000 barrels, compared with 14,591,000 on the same date of 1952.

District I (East Coast) showed 7,951,000 against 7,382,000 bbls. while District II (Midwest) was down to 4,347,000 compared with 4,608,000 last year.

DEALER COMMENTS: These were mostly on the summer discounts. The following are typical: "We're against the discount but had to use it as competitors did it. We also used it as a collection aid. It does not sell one extra gallon of oil but only serves to make customers price conscious." . . . "Most of our customers are on automatic fill, so we had no difficulties at regular prices." . . . "We did not use a discount but the major companies increased their price one-half cent 30 days ago while the independents did not follow this rise" . . . "We use the discount to get tanks filled before September" . . . "We use the discount simply to match competition." . . . "We used it to help sell oil against gas" . . . "Summer discount is a necessary evil promoted by the major oil companies; I do not think it means a thing" . . . "Our deliveries have not increased; it seems that 275 gallon tank owners do not consider one-half cent enough to warrant filling their tanks." . . . "In a weak market such as mine we see no reason for us to fill our own storage just yet" . . . "The September 30 date on discounts offers no incentive to buy before September" . . . "Our low pressure oilburners handle No. 4 beautifully even our one-half gph; We specify basement tanks in a warm room; we are able to guarantee fuel costs cheaper than coal" . . . "Believe discount helps, also helps sell larger consumer storage tanks; the best part is the inventory profit we can make after September 30" . . . "We think summer discount is effective but it should not extend past September 1" . . . "I think a summer discount is a bad move as it has not increased summer storage" . . . "We have not met any summer discounts and the resulting factor is heartening; the customers continue to accept automatic deliveries during the summer as in the past with no thought of discounts" . . . "With us the summer discount has actually increased storage" . . . "The summer discount is the most stupid blunder, next to large tank discount, that a major company has made in many years; if this is an example of their high-powered thinking it is time to look elsewhere for leadership." . . . "Summer discounts never increase sales, only weaken prices" . . . "The customer is going to burn X number of gallons regardless of price; the dealer is the boy that can move the product to the consumer if he has an incentive."

❖

W. E. "Bill" Gleeson has taken up the duties of sales promotion manager, McDonnell & Miller, Inc., Chicago 18. Previously, he served as western district manager for the Chicago firm. Gleeson has many years of experience in the heating field. A native of Oregon, he received his engineering degree from Oregon State College. Gleeson, in his new post, will make his experience in sales promotion and engineering available to help engineers and contractors.



Sid says:

White-Rodgers Primary Oil Burner Controls give long and dependable performance ... are easy to install and service!

The attractive White-Rodgers Primary Oil Burner Control, showing trip-free reset-lever.

Rotary-Clutch Combustion Switch —

Service features include the improved rotary-type friction-slip clutch with visible combustion switch. The helical-type bimetallic element with its large exposed surface area assures quick response to changes in stack temperatures . . . protected by heavy-duty guard.

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Ignition and scavenger timings are determined within the control and are not affected by installation variations. An assured scavenger timing of approximately one minute follows each burner cycle. Ignition timing on Intermittent type can be adjusted to meet unusual installation conditions.

Trip-free Safety Reset —

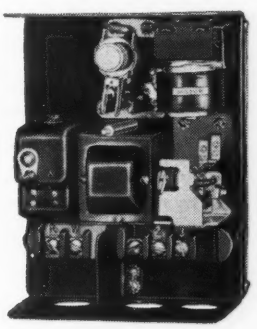
These White-Rodgers Controls recycle on flame failure, but lock out on safety if the condition persists after one recycle. The simplified trip-free safety reset permits user to resume operation, but prevents locking the control in an unsafe position.

Rugged Construction —

The rugged over-all construction prevents possible jars and jolts from affecting its operation. Ruggedly constructed relays, with heavy silver contacts. White-Rodgers Oil Burner Controls operate from a 2-wire thermostat . . . simplified wiring . . . easier installation.

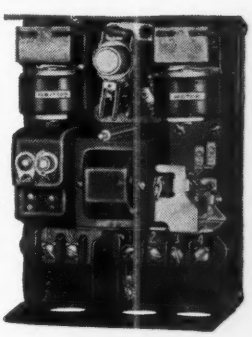
Cover Removed —

When the cover is removed from this White Rodgers Primary Oil Burner Control, the convenient terminal and conduit location, the simplified wiring requirements and the ample wiring space all make for quick flexible installation.



Open view of Constant Ignition Primary Oil Burner Control, showing ample wiring space and convenient terminal locations.

Type 611 Constant Ignition



Open view of Intermittent Ignition Primary Oil Burner Control showing easy to reach ignition timing knob.

Type 610 Intermittent Ignition

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Fill in and mail the coupon below TODAY!
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Government Influences on Fuels

by
Milburn Petty

WASHINGTON—It's still three months until Congress returns for its regular session—but representatives of the oil and gas industries here have plenty to worry about in the meantime.

Whether or not the House Commerce Committee resumes its oil investigation, the chairman, Congressman Wolverton (R., N. J.), has checked the price inquiry to the Department of Justice.

If Wolverton has his way, the group will have another look at oil pricing practices at the next session, if not sooner, but that will require a vote of the full committee.

Also, Congressman Heselton (R., Mass.) wants either the Wolverton Committee or the DJ to look into the effect of state proration laws on oil prices.

Other congressional committees are engaged in studies that involve oil, including several on imports.

DJ Lists Many Oil Complaints

The DJ is receiving such a flock of oil complaints that it is becoming impossible to act on them all—but, says Antitrust Chief Barnes, "we catalogue all and 'service' as many as we can."

Besides complaints about the recent increases in gasoline and fuel oil prices, margins and pipelines, others charged that state conservation activities "have resulted in the maintenance of an artificial and arbitrary price structure, by relating production of crude oil to existing market demand, at prices determined by the major oil companies," he said in a speech to the National Congress of Petroleum Retailers.

Particular emphasis is being given, according to Barnes, to inquiries concerning alleged price fixing of gasoline and fuel oil, and exclusive dealing arrangements.

While the DJ's oil activities have largely involved suppliers, Barnes warned that "agreements" among wholesalers and retailers to fix prices, adopt uniform margins or cause the boycott of price-cutting competitors "clearly violate the Sherman Act in all instances where interstate commerce is involved or affected."

He cited indictments now pending against fuel oil distributors (in New England) for alleged activities of this nature.

Earlier, Barnes had disclosed—in a letter to Senator Humphrey (D., Minn.)—that the DJ was looking into so-called market pricing but was finding "it extremely difficult to collect evidence which will sustain an action charging an agreement or conspiracy among the (oil) companies to follow such market leader." However, he pledged continued efforts on this.

Small Refiners Seek Relief

The Independent Refiners Association of America believes that "too much" of the excess refining capacity —built at the government's request to provide a reserve against emergency demands—"is being utilized to produce products not now needed for civilian consumption."

So, the IRAA says it might be necessary to have recourse to the Defense Production Act "to assure cutbacks which are required now, if the objective of the government in preserving adequate refining capacity is to be achieved."

While the IRAA gave no details, there is a provision in the defense law authorizing voluntary agreements to carry out objectives of this legislation, and providing for antitrust law clearance.

The declaration of policy recognizes that this law "requires expansion of productive facilities beyond the levels needed to meet civilian demand."

The IRAA is now exploring with the PAD and other agencies to see what the government can—or will—do to meet its "responsibilities."

IRAA's attitude was disclosed at an emergency meeting of non-integrated refiners to discuss the "desperate plight" of the independent refiner.

Stocks Called "Not Excessive"

Just before he left the PAD to return to his company, Will Donley (California Standard), PAD's program director, said "stocks, while ample, cannot be regarded as excessive in relation to current and prospective sales although they are somewhat poorly distributed geographically."

Donley said that despite the fact that distillate stocks currently "are such as to result in some price weaknesses in this product, refinery yields will have to be increased above last winter's levels to meet the estimated heating oil demands, assuming normal winter temperatures.

"Some adjustment in the recently-widened spread between gasoline and distillate prices probably will be called for to induce a higher refinery yield of heating oils," according to the PAD official. He said such adjustments would be more imperative, if the winter were colder than normal.

Donley also noted the sharp seasonal swing in total oil demand (about a million barrels daily or more), saying the Industry "is going to have to either equip itself with more storage capacity and learn to live with higher summer season stocks of distillates or to reconcile itself to substantial increases in operations during the winter months and substantial cutbacks after the peak heating season."

High Court Gets Two Gas Cases

Two important gas cases—both of which may ultimately affect prices and supply — are before the Supreme Court.

One involves the so-called gas transmission tax by Texas which the gas pipelines have attacked as unconstitutional as a "burden of interstate commerce."

If state taxing powers are upheld in this instance, the rates could be raised to "prohibitive" levels.

The other case is that involving the Federal Power Commission's jurisdiction over prices paid to Phillips Petroleum Co. by the interstate pipelines. FPC has disclaimed such authority but the circuit court ordered them to regulate such prices.

Phillips and the states of Texas, Oklahoma and New Mexico have appealed. The states say conservation would be interfered with and that many producers would not sell their gas if they were thereby subjected to federal regulation.

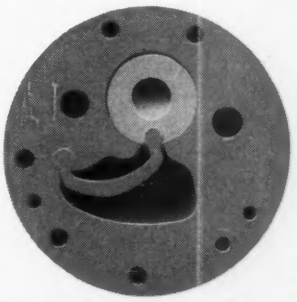
AUTOPULSE MODEL TUX

Autopulse's

proven dependability

pays off in extra sales for you

You can be sure of a satisfied customer every time you sell an Autopulse Electric Fuel Oil Pump, because the design and operation of the Autopulse has been tested and proved, in more than a quarter of a century of successful, economical and dependable service. The dependability of the Autopulse is an established fact. Twenty-five years of service life are not at all uncommon. Every sale you make leads to other sales, for there is no better source of new prospects and new business than the recommendations of your pleased, satisfied customers. The Model TUX is primarily a wall type pump. Complete instructions accompany every pump package for ease of installation and service requirements are held to a minimum. Write for complete data and information on the entire Autopulse Line.



The ingenious yet simple design and operation of the Autopulse rotor, is responsible for its high lifting power. The motion of the rotor — a cam operated semi-roll, has no sudden starts and stops, reducing wear to a minimum and providing exceptionally long service life.

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EASY TO SELL-SIMPLE TO INSTALL

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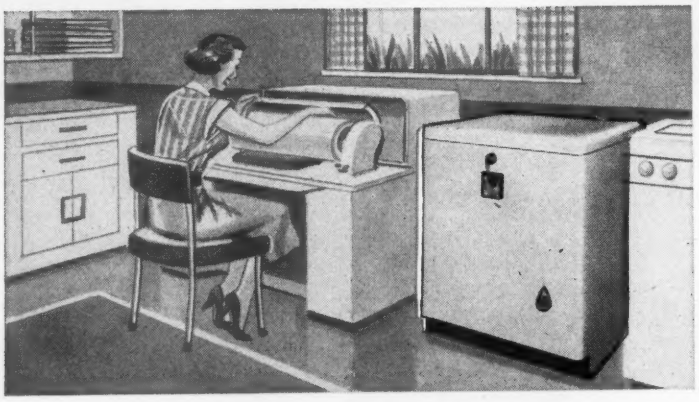
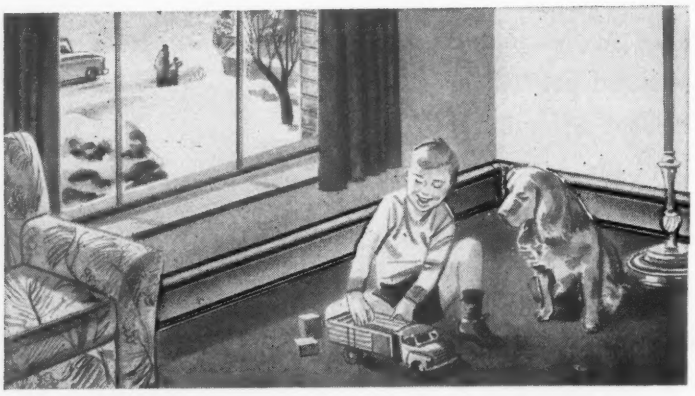
NATIONAL PACKET-BASEBOARD

AUTOMATIC HOME HEATING SYSTEMS



Quicken the buying interest of feminine prospects (and the men too) with the many "plus-comfort" features of the National Packet-Baseboard heating system.

The 1953 Model K Packet is a completely automatic combination forced hot water heating unit and domestic hot water supply . . . factory assembled for fast, inexpensive installation . . . 36-inch high white enameled cabinet . . . exclusive Raytrol control . . . components backed by one manufacturer.



National Art Baseboard is true floor-level perimeter heating. It delivers a blanket of warmth—gentle, adequate and health-protecting . . . no drafts or cold spots . . . quickly and easily installed . . . safe to children's touch . . . inconspicuous and space-saving . . . fast-acting and efficient.

Add to your profits by selling and installing National Packet-Baseboard hot water heating systems. You'll not only build better business but build a fine reputation for assured builder and home-owner acceptance and satisfaction.

Write for full information—ask for Bulletin No. 595-8-FO

THE NATIONAL RADIATOR COMPANY
JOHNSTOWN, PENNSYLVANIA

Freeze in Gas Heating due to Overselling a Possibility

"A FREEZE in the gas heating field" can be expected, a bulletin published by the Oil Heat Association of Maryland, Inc., Baltimore 1, quotes L. M. Holmes, commercial manager of the Dayton Power & Light Co. Mr. Holmes advised prospective builders to figure on fuels other than gas for heating, the bulletin states. The prediction of a "complete freeze" on gas space heating units for homes and commercial establishments was based on a statement made before the Ohio Public Utilities Commission by the chief engineer of the Ohio Fuel Gas Co., which supplies natural gas to Dayton, that "there isn't anything in sight" that might be encouraging to people desiring gas for heat.

The Beckley, W. Va., *Post-Herald* commented editorially a short time ago as follows: "A representative of four Columbia Gas System companies serving W. Va. told the Public Service Commission that they won't be able to obtain sufficient gas on peak days next winter to supply requirements of present customers. Because of this circumstance the gas companies are asking permission of the PSC to deny service to all new applicants for space heating purposes either in new buildings or conversion equipment. They also request permission to deny service to new industrial users. In short, the gas companies have expanded faster than they are able to serve their new territory . . ."

The OHA bulletin states that the tendency to oversall the natural gas market is not peculiar to utilities in Ohio or W. Va. The situation in Baltimore will become known, the bulletin reported, when the FPC sets a date for hearings on Atlantic Seaboard Corporation's application for re-allocation of gas to its customers.

❖

Pacific Northwest Survey studies farm buying Plans

PACIFIC NORTHWEST Farm Quad, Spokane, Wash., consisting of four farm magazines published in Washington,

PLUMBING
FLOW CONTROLS AND TEMPERING VALVES
CONTROL WITH
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FOR GAS, OIL OR STOKER FIRED ONE-PIPE
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THE DOLE VALVE COMPANY
1933 Carroll Ave., Chicago 12, Ill.
Representatives in Principal Cities
A limited number of Dole "mobiles"
are still available
for use by qualified dealers.
Write for information on your
business letterhead.

Oregon, Idaho and Utah, has concluded its annual farm consumer survey to determine what is being bought this year for the farms in the area.

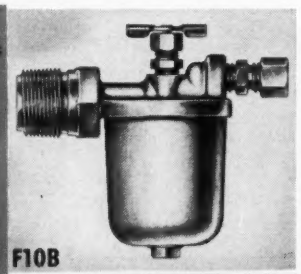
The figures developed by the study were based upon questionnaire returns received from a representative group of farm households in the four states. For heating equipment buying intentions they reported that 3.1% or 6,048 of all farm families planned to buy a furnace this year: 1,047 families in Washington; 1,914 in Oregon, 1,491 in Idaho and 1,596 in Utah.

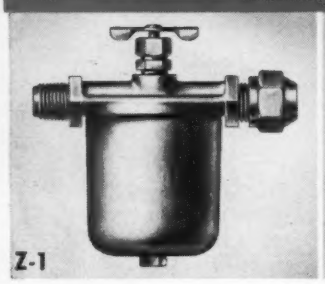
Asked about oilburners, 5,695 families, or 2.9% of the total, signified the intention to make such a purchase: 2,374 farm families in Washington, 1,855 in Oregon, 886 in Idaho and 580 in Utah.

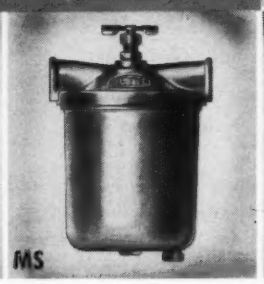
Oil heaters to be purchased by Pacific Northwest farm families total 2,705, 1.4% of all farm families, as indicated by the questionnaires. Of these, 838 farm families in Washington intend to purchase oil heaters, 1,077 in Oregon, 403 in Idaho and 387 in Utah.

SETTE Microstone Element FILTERS

Provide Maximum Filtration Longer ...Without Attention!







The secret lies in the use of a scientifically designed "Ceramic Element". The Ceramic Microstone Element... used in every SETTE FILTER...repels foreign matter instead of enmeshing it ...can be cleaned and reused...quickly, easily replaced once a year at low cost.

SETTE FILTERS...

● Stop foreign particles down to 1/10,000 of an inch ● Are easily installed ● Handle flow capacity from 2,000 to 10,000 gallons per year, depending on model, without cleaning or replacing Microstone Element ● Are available in correct capacity for every space heater, water heater, kitchen range, furnace, or other oil burning installation ● Offer practically no flow resistance ● Can be cleaned in three minutes or less ● Provide greater customer satisfaction ● Minimize service calls.

Model F10B—List Price **$2.80 each**
For small to medium installations. Fits tank or drum.

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For small to medium installations. Fits ALL control valves.

Model MS— List Price **$4.80 each**
For medium to large installations.

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For the largest, dirtiest jobs.

Only filter featuring Pre-Screening

DEALERS: If your jobber cannot supply you, order direct. Supplied postpaid anywhere in the U.S.A. Normal discount in dozen lots.

DISTRIBUTORS: Some valuable territories still available. Write today!

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New England OHI School starts 1953-54 Sessions

THE 9TH ANNUAL Oil Heat Service School, sponsored by the Oil Heat Institute of New England, Boston 15, opens September 14 in Salem, Mass., and will be held on successive nights in Manchester, N. H., Dover, N. H., Portland, Me., and Auburn, Me., once a week for a period of ten weeks. Schools in Salem and Dover will be held in local fire department quarters and in the other three cities in Y.M.C.A.'s.

Perfex Corp. will instruct the first three weeks, the first week.

Webster Electric will cover service problems with fuel units and ignition transformers the fourth week.

The fifth week Sundstrand Machine will cover service problems with their line of fuel pumps.

Sixth, seventh and eighth weeks will be covered by Harold Yeazel, assistant sales manager, Lennox Furnace Co.

On the ninth and tenth weeks, Institute of Boiler and Radiator Manufacturers will present a program covering, "Wet Heat Problems and How to Correct Them."

A. L. Dwelley is chairman of the School Committee. Other committee members include: Everett Kimball, Don Edwards, Harold Davies, Donald Dean, Edward P. Hacker, Harold W. Loveren, Marcel Fugere, Spencer McLellan, John J. Gill, Stanley Hultman, Catherine Woodbury, Don Hobbs, Al Breed, James McKenna, James Buchanan, James McIntyre, Jr., William Flood, and Frank Hickey.

The executive committee has A. L. Dwelley as chairman.

The announced cost for ten lectures is $25.00, less 20% discount for OHI members. Registration cards may be obtained by writing, The Institute Office, 839 Beacon St., Boston 15.

On January 14, the Oil Heat Service School will open with the same program in Providence, then into Brockton, Wollaston, Malden and Newton.

On March 29, the School will open in Worcester, following in Springfield, Hartford, New Haven and Bridgeport, finishing the season there on June 18.

"Adjust the carburetor with the motor OFF? NO!"

"Why Do It With An Oil Burner?"

Only *Combustioneer*® permits OIL and AIR ADJUSTMENTS while the burner is operating!

MODEL dLP

Available Now!

New Low Pressure TWO STAGE FUEL UNIT WITH SELF PURGING RESERVOIR!

You wouldn't let a mechanic adjust the Carburetor on your car with the motor off, so why would you even consider adjusting an oil burner while it is off . . . and you must with *ordinary* oil burners . . . but not **Combustioneer.**

Combustioneer . . . IS BETTER

Combustioneer is the only Low Pressure Oil Burner on which secondary air and oil capacity adjustments can be made *while the burner is running!* A simple screw adjustment permits *any exact* fuel capacity selection between **.50** and **4.00** g.p.h.

AGAIN it's Combustioneer

Another first. The new **Combustioneer** dLP Oil Burner has a TWO STAGE Fuel Unit with a *Self Purging Reservoir.* For inside or outside tank installations . . . draws up to **38** ft. horizontally plus up to **15** ft. vertically.

Combustioneer EXCLUSIVES

- Adjusts oil and air while burner is running
- Two Stage "Hydra-Vated" fuel unit
- Self purging reservoir
- Oil lift up to **15** feet vertical plus **38** feet horizontal
- Oil capacity range **.50** to **4.00** g.p.h.
- No extra lift pumps required
- "Free Floating" piston
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The Steel Products Engineering Company
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Please send me, without obligation, all details about the new **Combustioneer** Low Pressure Two-Stage Fuel Unit . . . and about a **Combustioneer** Dealer Franchise.

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. . . in dollars and cents
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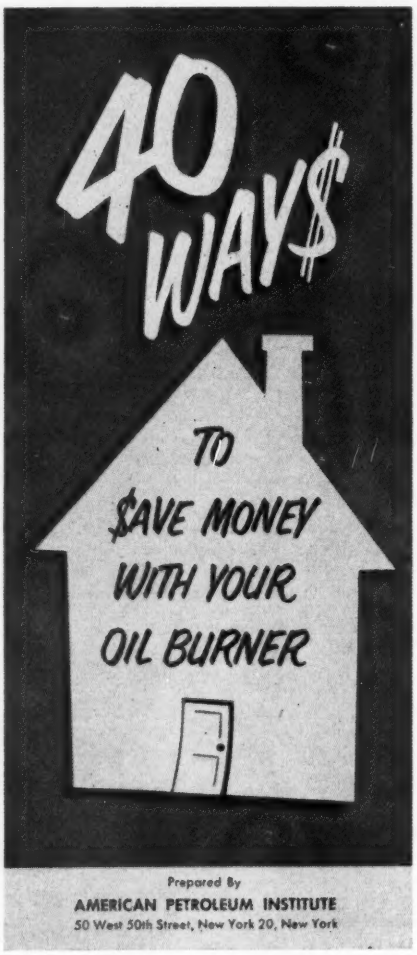
API reprints its Booklet, "40 Ways to save Money"

AFTER PHENOMENAL sales in the past year of its booklet, "40 Ways to save Money with your Oil Burner," the American Petroleum Institute has



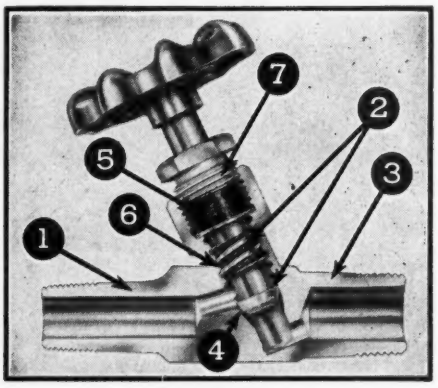
agreed to renew its supply to care for present orders and handle a few additional.

This booklet was announced in the October 1952 issue of FUELOIL & OIL HEAT, showing that it's actually less than a year old. In that time 578,749 copies were distributed by the industry to domestic heating oil users.

It's an eight-page, two-color piece ideal for No. 10 envelope mailing, and it conveys to your oil customer the strong impression that you are out to help him get the most for his oil dollar.

The booklet is being sold at cost, depending on the volume you buy, but it's in the range of 5¢. You can get a free sample copy by writing Information Dept., American Petroleum Institute, 50 West 50th St., New York 20, N. Y.

The INSIDE STORY of *Guardian* SUPERIORITY



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No. 1300 Two Tank Control Valve Assembly

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No. 1905 Oil Filter Valve made with ½" inlet I.P.T. male threads and ⅜" outlet I.P.T. male threads.

One valve may look much like another on the outside—but it's what's INSIDE that counts! Every Guardian valve has these features of superiority shown in the cutaway above:

1. **Denser, superior graining of extruded brass.**
2. **Finer machined thread and seating surfaces.**
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4. **Identical brass in stem and seat for greater wear . . . eliminates seizure.**
5. **Preformed asbestos - graphite rings for packing uniformity.**
6. **Quick-acting threads for opening and closing.**
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No. 1200 Individual Tank Control Valve

Guardian valves are designed for oil line service . . . built with precision . . . tested for uniformity. Look for the name "Guardian" on the valve.

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New Nylon Jaw Type coupling. Write for Catalog C-104.

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OB SERIES

BOILER FOR OIL

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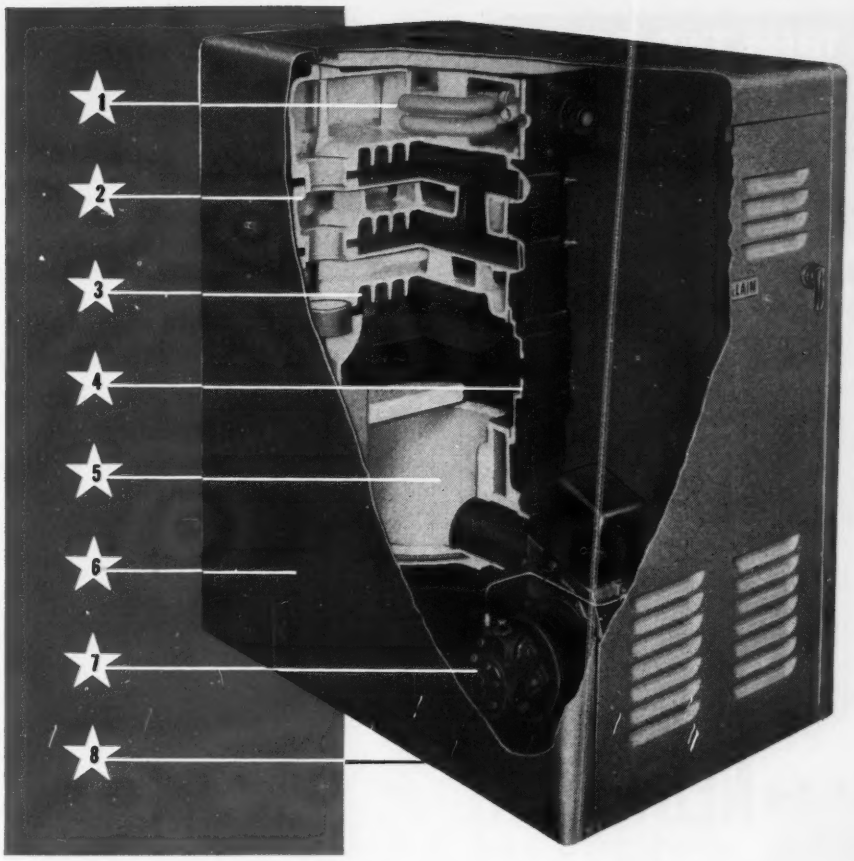
OIL HEATING UNIT

For hot water and steam heating systems. Capacities:
Steam 285-365 sq. ft.
Water 525-670 sq. ft.

Compactly designed for modern homes, OB Series Boilers are small enough to be tucked away in minimum sized utility rooms.

Note particularly the *round* shape! This design offers many efficiency advantages because it is the shape of the flame itself—no dead, unheated corners. Correct draft conditions are produced with minimum chimney size. Rugged, cast iron construction assures years of trouble-free service.



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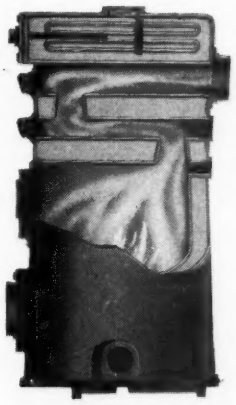
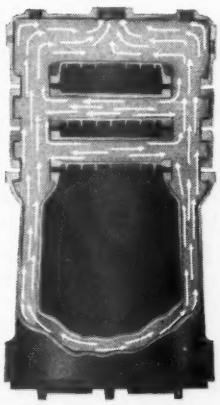


BACK AND FORTH FIRE TRAVEL

Hot gases travel in a balanced path through wide, deep finned flueways—no heat-wasting short cuts to the chimney.

VERTICAL WATER TRAVEL

Water travel is principally through vertical passages, accelerating the natural upward movement of heated water.



1. **Storage or tankless indirect domestic water heater may be installed.**
2. **No face grinding of sections—the tough outer skin of cast iron is left on to retard corrosion.**
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4. **Extra large fire door and frame are easily removed to permit servicing burner and combustion chamber.**
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7. **Oil burner furnished as standard equipment on OB Series Oil Heating Unit has exclusive, fuel-saving features. Flange-mounted.**
8. **Installs on any type of floor. Special baseplate allows free circulation of air beneath boiler.**

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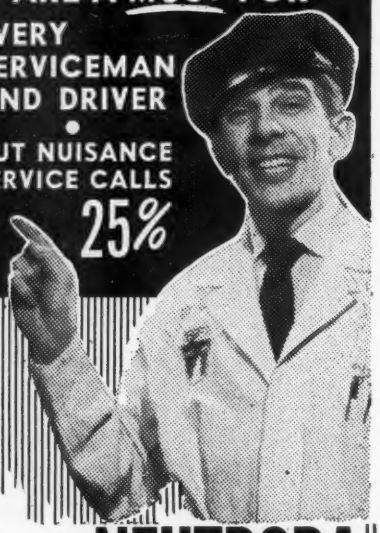


NEUTRODA

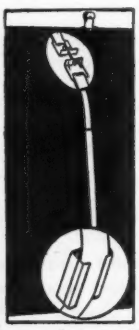
- STOPS ODORS DUE TO LEAKS & SPILLS
- ONLY KNOWN PRODUCT WHICH NEUTRALIZES OIL BY CHEMICALLY INHIBITING VAPORIZATION THUS ELIMINATING ODOR
- JUST SPRINKLE IT ON! A LITTLE GOES A LONG WAY

On Hot Air Installations

- A light sprinkling of Neutroda on the air filters kills all fuel oil odors that have penetrated to rooms thru ducts, in 2 to 5 minutes
- A light sprinkling of Neutroda at beginning of heating season when unit is started up destroys mildew odors—prevents call-backs

TANKIT

STOPS
FUEL OIL TANK
LEAKS



- Cleaner, faster, easier —stops leak in 2 minutes.
- Push patch into position, even on low-legged or twin tanks.
- Replace tank at your convenience.
- Pressure can even be applied at angle.
- No pump-outs, no cellar damage, no time wasted, no lack of heat, no customer inconvenience.
- Same patch can be re-used indefinitely.
- 2 sizes—Junior for small leaks, Senior for Porous Areas up to 18 sq. in.

BOTH PRODUCTS AVAILABLE at your Supply House Only. Or write for full information and name of nearest distributor.

THE TANKIT CO
174 GOLDSMITH AVE. NEWARK-8, N. J.

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Group's activities to reach the editor by the 18th.

Fuel Oil Distributors of N. J. joins OHI Distribution Group

FUEL OIL Distributors' Association of New Jersey has applied for membership in the Distribution Division, Oil-Heat Institute of America, Inc., New York 36.

"This newest affiliation of an organized oilheating industry group with OHI," F. S. Burrough, national secretary, OHI, said, "joins with the national industry trade association, a state fueloil organization numbering some 700 members."

Fuel Oil Distributors' Association of N. J., Newark, N. J., probably the first state fueloil organization in the country, has an impressive record of service to its membership throughout the state, and lists most of New Jersey's leading fueloil and oilburning equipment dealers as its members.

Under its by-laws, the policies and affairs of OHI's Distribution Division are guided by a representative board of directors made up of one director from each organized chapter area. Thus, OHI will gain a new director from the New Jersey group in Willard Hedden, The Hedden Co., Dover, N. J., president, Fuel Oil Distributors' Association.

Oil equipment Jobbers to hold third annual Meet in Columbus

OIL MARKETING equipment jobbers from 25 states will gather in Columbus, Ohio on September 27 through 29 for the third annual meeting of the National Association of Oil Equipment Jobbers, Tulsa 3, Okla. Charles R. Scott, Ohio fire marshall, will discuss national and state fire regulations that are of special concern to oil equipment men. Seven widely experienced jobbers will engage in a panel discussion of problems that NAOEJ members encounter in the day-to-day operation of their business.

All other features of the convention, including the trade exhibition of oil marketing equipment, have been designed to give visiting jobbers as much practical information as possible. Chairman of the convention committee is H. R. Tuller, Tuller Equipment Co., Columbus.

The association is composed of firms that sell and service equipment used in service stations, bulk plants, truck tanks, marine terminals and similar marketing operations. Some of the member firms also handle equipment used in domestic heating. These firms are located in the Northern and Eastern states. The association was organized more than two years ago.

Serving as officers of the association this year are John Quilter, Pump & Tank Co., Richmond, president; W. E. Crowder, United Pump Service & Supply, Dallas, vice-president; E. de Penaloza, General Equipment Co., St. Louis, treasurer and Howard Upton, executive secretary, Tulsa.

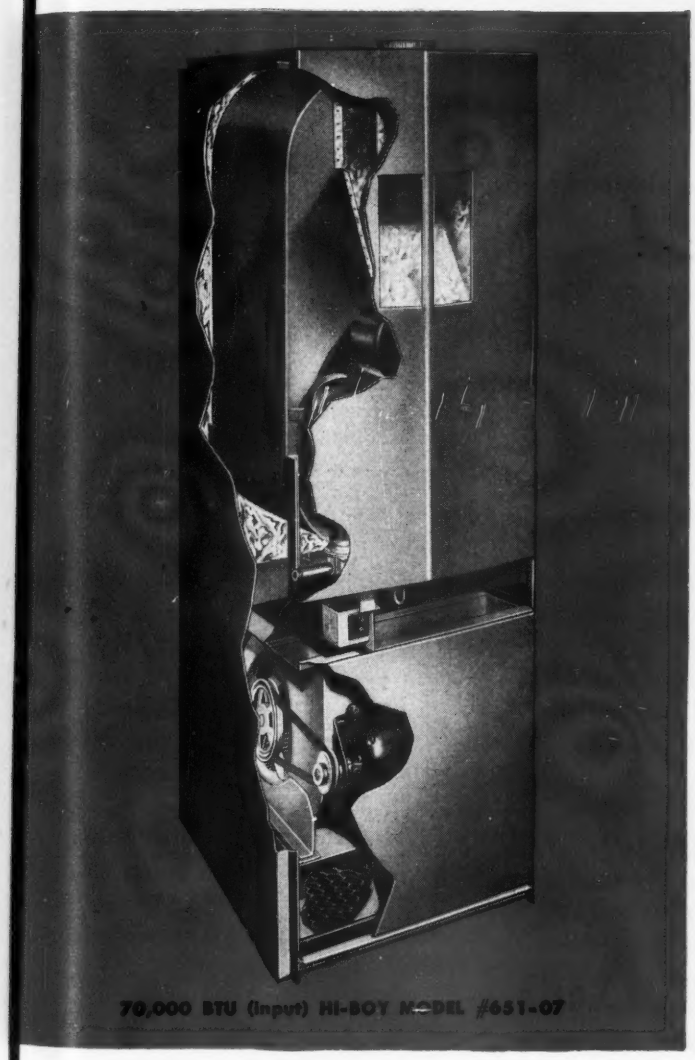
Indiana sheet metal Group holds mid-year district Meeting

THE MID-YEAR district meeting of the Sheet Metal and Warm Air Heating Contractors' Association of Indiana, Inc., Terre Haute, held in Evansville, Ind., July 17, was highlighted by a talk given by John Collins, Civil Defense Director of Vanderburg County who pointed out the hazards facing America.

Collins was stationed with other viewers, five miles from an atomic bomb explosion in the Nevada desert. Based on his observations, he outlined the results to be expected from a fleet of 100 bombers, which the United States is prepared to send on short notice to any chosen target over the globe. He assured the group that Soviet Russia is equally prepared to complete a like mission as thoroughly as the United States.

Howard Lewis was arrangement chairman. Local Evansville supply firms who acted as sponsors of the event include American Radiator & Standard Sanitary Corp., Industrial Supply Co., Ohio Valley Hardware & Roofing Co., Plumbers Supply Corp., and the Evansville Local, Sheet Metal Contractors' Association, Inc.

WILLIAMSON
WARM AIR FURNACES


70,000 BTU (Input) HI-BOY MODEL #651-07

Sell with confidence
(it's Williamson Quality!)

...against competition
(priced right!)

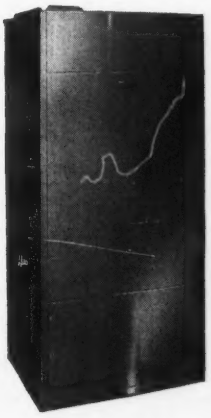
Install with ease
(pre-assembled and pre-wired!)

...and really profit
(even in low-cost housing!)

new

- ★ Pre-wired and Pre-assembled
- ★ Packaged Units
- ★ Ready to install in 10 minutes
- ★ Shipped in only two crates
- ★ Compact—Close Clearance Design
- ★ Quiet Operation
- ★ Optional self-energizing controls
- ★ AGA Approved

WILLIAMSON SUMMER AIR CONDITIONERS



Williamson two and three ton companion summer air conditioners offer the dealer a double profit. The two packaged installation is simple to install and the installed unit is only 33" wide x 26" deep x 72" high. The hermetically sealed refrigeration unit can be inserted or removed by one man without disturbing the rest of the unit. If service should ever be required simply slide the sealed compressor unit (which is warranted for FIVE years) from cabinet and return to the factory. Write today for further information.

General Offices:
3530 Madison Road, Cincinnati 9, Ohio

Factories:
Cincinnati, Ohio and Madison, Indiana

YOU SAVE AS MUCH AS 25% WHEN YOU BUY FITTINGS IN LOTS OF 100 OR MORE AT ANY SID HARVEY STORE

Make Sid Harvey's your headquarters for every replacement part—new or rebuilt—oil—gas—stoker.

SID HARVEY INC.
VALLEY STREAM NEW YORK

25 SID HARVEY STORES

Order from the one nearest you.
Mail orders filled the same day as received.

Officers *of the recently organized Oil Men's Club of Sedalia, Mo., were elected at the club's first meeting August 10. They are, left to right, Cecil Owen, Continental Oil Co., secretary; Lloyd Parker, Sinclair Refining Co., second vice-president; Kenneth Buchholz, The Texas Co., president; Jerry Brown, Brown Oil Co., first vice-president and M. E. Austin, Socony Vacuum Oil Co., treasurer.*

Chrysler Airtemp has shipped over 1300 air-cooled Units

AIRTEMP DIV., Chrysler Corp., Dayton 1, Ohio, has announced that shipments of air-cooled residential airconditioners passed the 1,300 mark in mid-August. Production of the two and three-horsepower air conditioners began this summer.

Airtemp is one of the pioneers in the development of air-cooled residential airconditioners primarily for use in water-short areas. In conventional airconditioners, the heat removed from the home is transferred to water. Air-cooled units transfer this heat to outside air, eliminating the need for water and water piping.

National Warm Air Group to celebrate 40th Anniversary

TEN YEARS short of a half-century of operation, The National Warm Air Heating and Air Conditioning Association, Cleveland 14, will mark its 40th year with an Anniversary Convention to be held December 2 and 3 at the Hotel Cleveland, Cleveland. The Association is dedicated to the advancement of the warm air heating industry through research, education, and publicity.

The Association Program Committee, under chairman Marion Levy, is arranging a program that will interest manufacturers, wholesalers and dealers alike. Other members of the committee include: W. G. Van Etten, Conco Corp.; J. N. Crawford, Affiliated Gas Equipment Co.; H. F. Curtis, Auer Register Co.; J. F. Deane, International Sales Co.; E. P. Hayes, C. A. Olsen Mfg. Co.; S. J. Levine, General Electric Corp.; E. A. Norman, Norman Products, Inc., and J. W. Norris, Lennox Furnace Co.

It was also announced by the National Warm Air Heating and Air Conditioning Association that L. G. Miller has been retained by the Association in the capacity of Technical Consultant. Miller, in accepting his new post, retired as Dean of Engineering, Michigan State College.

As a step to publicize further the features and advantages of warm air heating and air conditioning to consumers, the Association has established a Speakers' Bureau.

Plumbing and Heating Bureau sets Meeting for October 8

THE ANNUAL MEETING of the Plumbing and Heating Industries Bureau, Chicago 1, will be held at the Palmer House, Chicago, October 8. All members of the Bureau, manufacturers, wholesalers and contractors are invited to attend.

Earl E. Brown, Bureau president, announced the appointment of a Nominating Committee consisting of Earl J. Gossett, president, Bell & Gossett Co., chairman; John M. Kohler, vice-president, Kohler Co. and J. A. Hickman, district sales manager, American Radiator & Standard Sanitary Corp.

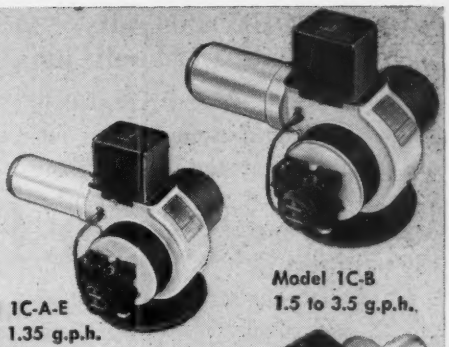
Wherever You Need BURNERS of BETTER QUALITY for BETTER PERFORMANCE

CHOOSE SUN-RAY

Way ahead with extra values

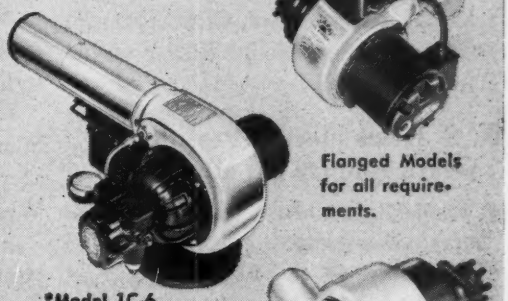
FOR EVERY HEATING NEED FROM 0.5 TO 25 G.P.H.

*Model S Burner with special aerodynamically designed housing for famous fuel saving "Shell" Combustion Head; 0.7 to 2 g.p.h.



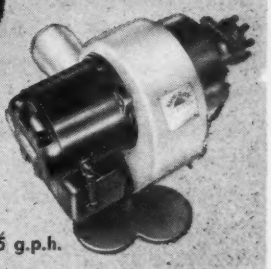
Model 1C-A-E
0.5 to 1.35 g.p.h.
Model 1C-A
0.75 to 2 g.p.h.

Model 1C-B
1.5 to 3.5 g.p.h.

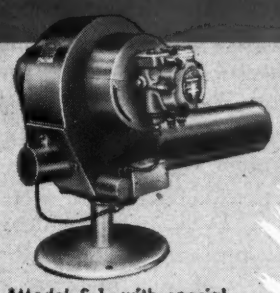


Flanged Models for all requirements.

*Model 1C-6
3 to 6.5 g.p.h.



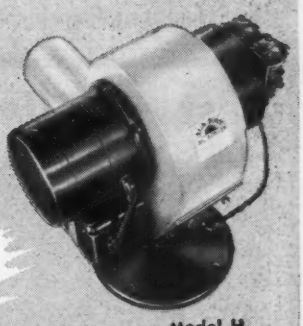
Model G
0.75 to 2.5 g.p.h.



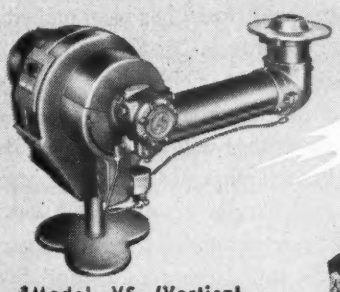
*Model S-1, with special aerodynamically designed housing for famous fuel saving "Shell" Combustion Head; 2 to 3 g.p.h. Model S-2, 3 to 6 g.p.h.

SUN-RAY FULLY AUTOMATIC OIL BURNERS

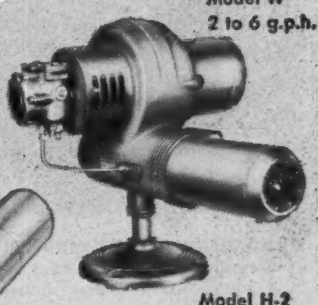
FAMOUS THE WORLD OVER FOR QUALITY AND ECONOMY



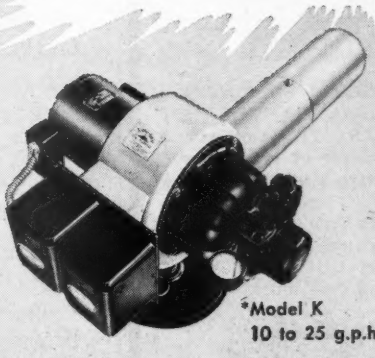
Model H
2 to 6 g.p.h.



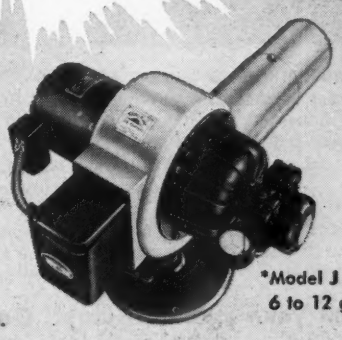
*Model VS (Vertical Flame), with special aerodynamically designed housing for famous fuel saving "Shell" Combustion Head; 0.7 to 2 g.p.h. Model VS-1, 2 to 3 g.p.h.



Model H-2
5 to 8 g.p.h



*Model K
10 to 25 g.p.h.



*Model J
6 to 12 g.p.h.

MEMBER OHI OIL HEAT INSTITUTE OF AMERICA

***Delayed action oil valve mounted and wired. Available on other models as an extra. Built-in electronic controls optional on all models.**

Inquiries invited from boiler and furnace manufacturers

SUN-RAY BURNER MANUFACTURING CORPORATION

139-22 Queens Boulevard, Jamaica 2, New York

Wisconsin OHI holds golf Outing at local Club

THE WISCONSIN Oil-Heat Association, Milwaukee 2, held its annual golf outing August 7 at the North Shore Country Club. A cocktail party preceded the dinner to round out the day's activities.

Chuck Jacobus served as chairman of the golf committee. Other members on the committee included Walter Bloedel, J. L. Savage, Lavern Schaetzel, Walter Kadi, Charles Stoffel, Pirie Benson, John Weiler and Harold Mottram.

A. S. Grier elected President Ozark Empire Oil Men's Club

A. S. GRIER, Standard Oil Co., (Indiana), was elected president, Oil Men's Club of the Ozark Empire, Springfield, Mo., succeeding Wayne S. Young.

Other newly elected officers include W. A. Whitlock, M. F. A. Oil Co., vice-president; E. K. Stoudard, second vice-president and Ralph Madden, Madden Oil Co., treasurer.

Burl Hamilton, Continental Oil and Joe Cunningham, Cunningham Equipment, were elected directors.

Conference on Motors for air moving Equipment Planned

THE FORT WAYNE section of the American Institute of Electrical Engineers, Fort Wayne, Ind., is sponsoring a conference on the application of motors to the air moving industry, October 6, 7, and 8 at the Hotel Van Orman in Fort Wayne.

A tentative list of subjects and speakers for the conference, not necessarily in proper order, include:

Fan Motor Characteristics and Standards, T. E. M. Carville, manager industrial engineering dept., Westinghouse Electric Corp.

Automatic Temperature Control of Heating, Ventilating and Airconditioning Air Handling Systems, G. V. Steffens, district manager, Minneapolis-Honeywell Regulator Co.

The Application of Shaded Pole Motors to Room Airconditioners, R. W. Morgan, chief engineer, Fedders-Quigan Corp.

Requirements of Airconditioning Fan Motors, M. D. Irwin, product engineer, Carrier Corp.

Underwriters Requirements for Fans, W. H. Farrell, engineer, Underwriters Laboratories.

Room Airconditioners, W. P. King, engineer, Servel, Inc.

Furnace Fans, W. A. Rockafield, engineer, The Brundage Co.

Automatic Protection of Motors in Air Moving Equipment, W. L. Hirshberg, engineer, Spencer Thermostat Div., Metals and Controls Corp.

Unit Heater Fans, A. Currie, chief research engineer, L. J. Wing Mfg. Co.

Fuel Oil Distributors of N. J. hold third annual golf Outing

THIRD ANNUAL golf outing of the Fuel Oil Distributors Association of New Jersey, Newark 2, was held August 4 at the Plainfield Country Club.

Tee off was at noon, and after an afternoon of golf, the group gathered for dinner. The outing committee chairman was Robert K. Hamilton. Other members of the committee included John deC. Blondel and Willard Hagerman.

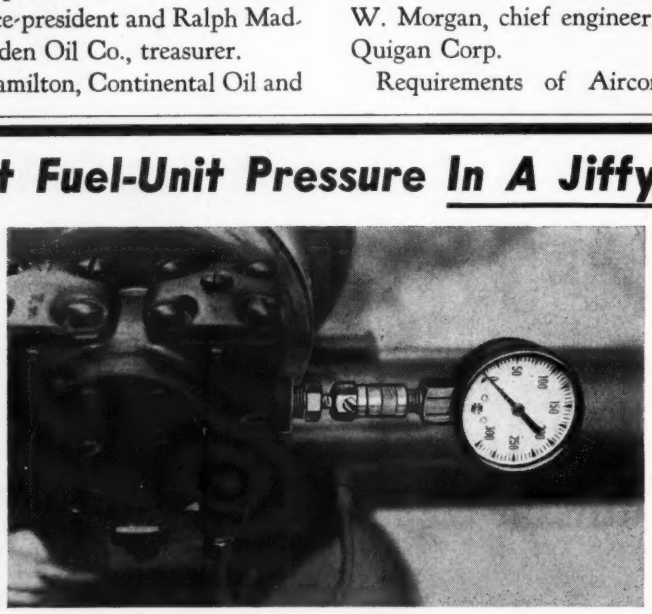
❖

Lewis F. Davis, vice-president in charge of operations, Hayward Oil Burner Corp., Boston, Mass., died on August 15 after a short illness. Davis was a pioneer in the oilheating business and was widely known in the field in New England.

Leonard Schnall has been named by General Controls Co., Glendale, Calif., to head its new field sales and service office in Syracuse, N. Y. The new Syracuse office will report to the Buffalo branch office of General Controls, but will handle all sales and service matters on household and industrial controls in a large area around Syracuse. Schnall was formerly on the sales staffs of International Harvester Co. and Lever Brothers.

C. W. *Cornelssen* has resigned from York-Shipley, Inc. to join Brooklyn Cornell Utilities, Brooklyn, N. Y., distributors for G-E and Timken. Cornellsen will assume charge of the company's wholesale expansion program, covering both equipment and fueloils.

Test Fuel-Unit Pressure In A Jiffy . . .



Hydrovalve's NEW contribution to quicker and easier oil burner servicing, is a gauge adapter that makes it unnecessary to remove frozen and mutilated bleeder valves in order to check FUEL-UNIT PRESSURE.
Simply remove screw from any bleeder valve, insert QUICK-TEST GAUGE ADAPTER . . . That's all it takes to check pressure.

DO MORE SERVICING—Do it quicker—with a HYDROVALVE QUICK-TEST GAUGE ADAPTER. This time-saving tool is sturdily made of heat treated alloy steel for extra strength and features a neoprene "O" ring packing, so that the gauge can turn 180° for checking from any position. A new seat design adapts the new QUICK TEST to all bleeder valves and fuel units.

Get it from your jobber to-day! Only $1.45

For trouble-free performance ask your jobber for HYDROVALVE electrodes, gaskets, service parts, tools, couplings, bleeder plugs, etc.—They're service engineered.

HYDROVALVE CO., 1319 Utica Ave., Brooklyn 3, N. Y.

Conservation - America's Lifeline

A Speech that local oilheating Dealers will find useful for Oil Progress Week Programs

The Oil Industry Information Committee has prepared the following speech for use in community activities participated in by local dealers during Oil Progress Week, October 11 through 17. The talk, with slight variations, also can be used at other times during the year. It is intended for use by fueloil or oilheating dealers, for example, in appearances before local groups, clubs or school organizations, radio or television panel programs and similar activities.

Summarized, the talk emphasizes the importance of conserving America's natural resources and tells of conservation methods which enable the oil industry to find more oil, get more of it out of the ground, refine it into more and better products, transport it and market it in abundant quantities.

Of particular importance to the oilheating dealer is the fact that the theme of conservation clearly develops that the oil industry by consistently finding more oil than it uses has increased proved petroleum reserves to the record high level of almost 33 billion barrels at the end of 1952. In fact, last year the industry found more than one barrel of oil for each barrel withdrawn from the ground. In an entirely positive manner, the talk thus gives assurance of a plentiful supply.

Dealers can increase the effectiveness of the talk by injecting local background material, plus such information on their own companies as is pertinent. Toward the end of the speech we have inserted suggested copy that the dealer can add to reach oilheating users. Here, too, he will have the opportunity to change or vary the copy so that it most nearly conforms to local conditions.

CONSERVATION is such an important but misunderstood subject that I think I should start this talk about it by giving you a few definitions—definitions of what the term really means, along with some mention of the things it definitely does not mean.

Use without Waste

Collier's Encyclopedia says simply that conservation is "the wisest use of natural resources." The American Petroleum Institute, trade association of the oil industry, puts it this way: "Conservation means production and use of natural resources without waste and with provision for the future supply of these resources." Every oil man accepts both of these definitions . . . and acts upon them.

There are, unfortunately, people to whom conservation means hoarding our natural resources—hiding them, as a miser might use a hollow tree or a mattress—instead of investing them to make life richer for us all. The same sort of people once objected to opening up the West. They wanted to "save" that vast new land for future generations. Just think what America would be today if all the people in the United States still huddled east of the Appalachian Mountains.

There also are people—you probably know some of them—who think it is all right to use replaceable resources, like farm crops, wood, and waterpower, but who want to hoard things like iron, coal, and oil, that can't be replaced after use. Those folks forget that, throughout history, men always have managed to find new sources of raw materials and energy before they consumed the older ones.

When scientists are developing atomic power and talking about obtaining boundless energy directly from the sun—when we are supplementing iron and copper with aluminum made from mud and magnesium taken from sea water—when we can do things like that, wouldn't Americans be the laughing stock of the world if we insisted on living in log cabins and burning wood in our stoves, furnaces, and locomotives?

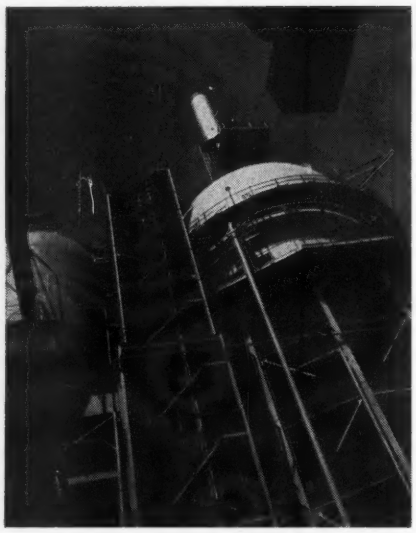
Finally, there are the well-meaning souls who wring their hands over the waste of natural resources that already has occurred in this country. They moan that, from Colonial times until about the end of World War I, American farmers let the fertile topsoil wash off or blow away from about one-fifth of the nation's farm and grazing lands. They scold the petroleum industry because it let new oil wells gush all over the landscape and because, decades, ago, oil was stored behind earthen dykes where most of it evaporated or sank back into the ground. They criticize the early oil refiners because a few of them poured gasoline into the nearest creek. (Before the automobile was invented there was no market for gasoline, you know. It was an unwanted by-product of kerosene manufacture.)

Those good people forget that a certain amount of waste and inefficiency is inevitable when a young and inexperienced people open up a virgin continent. When land is cheap but labor, capital, and powerful machinery are dear or unobtainable, farmers naturally tend to work the land until it is worn out, then abandon it and stake new and fertile claims somewhere else.

The Turn to Conservation

When land becomes dear, capital abundant, and good agricultural machinery available in quantity, farmers turn to conservation. Then they find that it pays to fertilize the soil; to drain, irrigate, terrace, and contour-plow it to prevent erosion.

The same economic principles gov-



ern all industries, including the oil industry. Nobody will deny that there was a robber-baron era in our history—an era that reached its peak shortly after the Civil War and ended when Teddy Roosevelt completed his trust-busting campaign. During those decades, America's resources seemed limitless and were dirt-cheap. But capital was scarce, machinery rickety or unobtainable, and laborers so few that they had to be recruited abroad.

During this period, we were straining every muscle to repair the damage of the Civil War and to make our defenses strong against repeated threats of attack from abroad. Given such circumstances, I believe you will agree that a temporary policy of exploiting natural resources was inevitable.

Since the end of the First World War, we have entered a new epoch. It is a period when the conservation of our soil, ores, fuels, water, forests, highly skilled labor, and efficient machinery pays tremendous and increasing dividends. It pays those dividends in dollars and cents, of course. But it pays them also in better living standards, higher levels of education, and other good things. Exploitation is outmoded now. Today the watchword is "efficient use without waste of all natural resources."

Now, I don't pretend to be an expert on all phases of conservation. The subject is too broad for one mind to encompass. I do know something, though, about what my own industry is doing in this field. I also know about the many ways in which oil conservation ties in with and multiplies the effectiveness of other kinds of conservation. So, if I may, I will tell you about just a few of the hundreds of things oil men are doing to stretch America's petroleum resources in order that they may meet your present and your future needs.

Oil men really have a two-fold conservation job. First and foremost, we must keep the American people plentifully and constantly supplied with reasonably priced, steadily improved petroleum products.

This is imperative because petroleum products now provide 62% of all the fuel needed to run America's factories, heat her homes and public buildings, till her farms, and operate her transport systems.

It is important, too, because the armed forces that defend our freedom depend almost entirely upon oil for their mobility and striking power.

And it is doubly important because every large-scale conservation practice used by farmers, home owners, and business men—whether flood control, prevention of food spoilage, or the efficient operation of semi-automatic, high-speed machinery—depends upon, for its success, oil in some form.

Without oil-powered tractors and bulldozers, farmers could not terrace, ditch, or irrigate their land on a large scale. Without oil-based fertilizers and insecticides, they would be hard-put to maintain their present high levels of crop production. A large part of the food-packaging industry leans heavily on air-tight packages coated with petroleum wax. Newly developed lubricants stand up under bearing stresses undreamed of by machinery designers only a few years ago. Petroleum plastics supplement the supply of many scarce strategic materials. And so it goes. Make up your own list of such uses of oil. The length of it will amaze you.

The second big conservation job we have to do is to keep finding a lot more oil every year—keep finding four or five per cent more than we found in the preceding year—and to keep on improving the efficiency of the products we make from that oil. The only way we can keep ahead of a public demand that may well double during the next quarter century is by bringing up new oil that may be hidden several miles underground or beneath the sea. And then we have to s-t-r-e-t-c-h that oil for all we are worth.

I suppose the best way to explain what oil men are up to, conservation-wise, would be to take you on a conducted tour of my industry. I can't do that, physically. But perhaps I can describe such a tour so you will get the feel of what is going on.

For one thing, oil explorers are making aerial surveys of all land areas within the United States and off its shores were geologists think oil deposits may be located. Every day planes fly checkerboard patterns over mountains, deserts, lakes, swamps, and rolling farmlands. They carry delicate instruments such as radar, Geiger

(*Please turn to page* 186)

Vaporizers build fueloil Load

Rochester Firm finds that vaporizing burner Specialization induces rapid Expansion

by
Charles Burkhardt

BACK IN 1945, Anthony Licciardi, who is now president and general Manager of Home Equipment Company, Rochester, N. Y., decided that his own home needed a new oilburner. After shopping around for one he quickly realized how hard they were to get and how great was the demand for that type of equipment. This little fact was to change the course of his business life and that of his three brothers.

Stimulated by the impressive demand for automatic oilheating that he encountered in Rochester, he took a little business space in his brothers' service station and started to buy up old burners and rebuild them. Then he sold them at a good profit. In addition Tony bought himself a two wheel trailer and attached it to his car and went into the home equipment servicing business. Tony did everything from puttying windows to servicing oilburners and eventually began to concentrate very seriously on the latter.

A year later, his business had developed so rapidly that he was occupying a considerable portion of the space in his brothers' service station with growing pains of considerable intensity. Now, Tony knew that the heating business was going to be his life's work and he attended the Rochester Institute of Technology at night taking all the technical courses in heating that were available.

Transport *and cab-over-engine truck which launched Home Equipment into the fueloil distribution field last year. By the end of this year the outfit will reach a million gallon load.*

Business got better and better and by the end of 1946 the brothers began to look less and less towards the gas service station business as a future and more towards the home heating field as the bigger opportunity. Joe now left the service station business to join Tony. Joe handled most of the service work.

A small office at 673 Lexington Avenue was added to cope with the heating load and Angelo, the youngest of the four brothers and fresh out of the Marine Corps, joined Home Equipment Company as office manager. He took over supervision of most of the office detail. This left Frank as the only member of the quartet still in the gas station field.

In early 1947, a display room was added to the office and a garage type structure on adjoining property, owned by the brothers, was turned into a complete sheet metal shop. It was Tony's idea as he expressed it, "to have a complete heating business and the sheet metal shop was another long step towards that goal." The final step was to get into the fueloil business—but that's getting ahead of the story.

Also in 1947 the Home Equipment Company acquired the exclusive franchise for the H. C. Little oilburner line, covering the City of Rochester and began a cooperative advertising campaign. Results were excellent and one vaporizing burner after another was installed. In 1949 the outfit did about $250,000 worth of domestic heating installations and to date they have made nearly 3,000 H. C. Little burner installations and another 5 to 600 gun burner installations.

This year another 300 oilburners will be installed along with some gasburners. At the end of 1949 the gasoline service station was sold and the fourth brother came into the heating business.

All during this time the company was adding trucks for service and in-

The fleet *of Home equipment Company's service and installation trucks stands at the back of the firm's newly occupied quarters. This building contains the warehouse, offices, showroom, garage and sheet metal shop.*

stallation as well as additional personnel. The setup now includes two stenographers, one bookkeeper, one service manager, an office manager, general manager, warehouseman, two sheet metal crews of two men each, two installation crews of two men each and one two-man cleanup crew (does 1,000 cleanups per year).

A large tract of land was purchased in January of 1950 with a two-story brick structure that contained a completely equipped sheet metal shop. This is Home Equipment's present location.

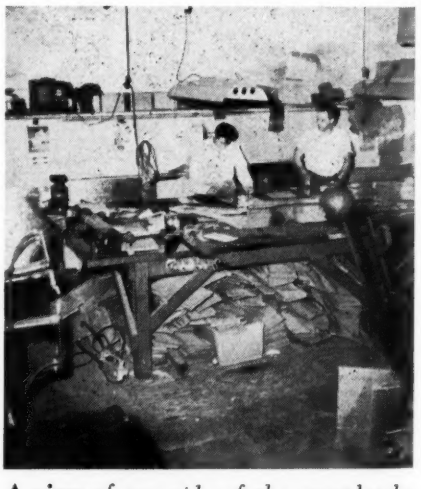
By May of 1952, with more than 3,000 burner installations to their credit the Licciardi brothers decided it was time to go into the fueloil business, selling No. 2 oil and kerosene. They bought a 4,900 gallon truck-transport and a 2,100 gallon cab-over-engine tank truck and use them to distribute Mobilheat oil.

Since the firm never lost contact with its customers, because it continued to service their installations, it was not too difficult to swing service customers of the past years over to buying oil. The company's fueloil load has grown rapidly and by the end of this year it will reach a million gallons, with about 83% of all the accounts being vaporizing burners. Ninety per cent of the fueloil sold is No. 2 grade; 10% is kerosene.

The biggest share of Home Equipment Company's burner sales come from the bonus plan, whereby a cus-

(*Please turn to page 182*)

W. R. McCurdy, Jr., *J. C. Little's factory representative for New York State, reads a telegram congratulating the Licciardi Brothers on their entry into the fuel-oil field. From left to right, Angelo, Frank, Tony and Joe smile happily as they take the final step toward making their business a complete heating business.*



A view *of one side of the completely equipped sheet metal shop.*

Upstairs showroom *displays a complete line of oilheating equipment. This photo shows only one side of the showroom.*

$10.00
IN CASH TO YOU

FOR EACH SALE OF HEATING EQUIPMENT REFERRED TO US BY YOU

Just call us or register on this card the names of friends, relatives, neighbors who are interested in Automatic Heat. **We'll Do The Rest!**

Name Prospect's Address

1 .....

2 .....

3 .....

Your Name .....

Remember, your prospects must be registered in order to receive credit for sale.

This business *reply postcard with its $10 bonus offer is responsible for about 75% of all the live leads that develop into sales. Nearly 3,000 vaporizing burners have been sold and installed since 1945.*

Use This Handy Order Form Now!
Mobilheat Fueloil

Check

Give me the personal, individual attention necessary to maintain a constant supply of Mobilheat in my tank all winter. Every delivery will be through City-sealed ticket printing meters. My price will never exceed established market price for this area. ☐ No. 2 Oil ☐ Kerosene

Fill my tank now. This will prevent rust and scale from condensation of moist air admitted through the vent pipe.

BUDGET PAYMENTS
10 small monthly payments for oil and service without added cost appeals to me. Send notice of first payment on July 1.

Give my heating unit the conditioning services described plus response to emergency calls without added labor charge for one year.

☐ I buy fueloil from you **$13.50**

NEW CLIENTS ONLY Tank size..... gallons

Summer Hot Water.....Yes.....No.

Sign Here .....

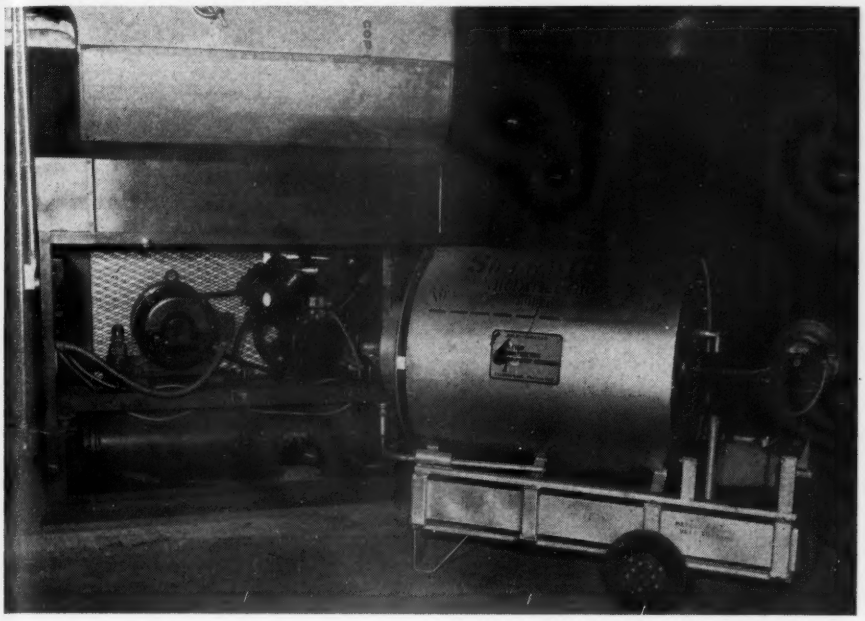
My address is .....

.....

Telephone ..... Date.....

Postcard *type service and oil contract is used quite successfully. The budget payment plan is featured and attracts many customers.*

Air cooling system *opens up to admit emergency hot air to the ducts to save a large warehouse inventory from freezing.*



Oilheating on Wheels

Portable heating Units rapidly gaining in Popularity

by
Robert Gray

IT WAS IN THE fall of 1951 that the Chase Candy Co., St. Louis, rented another floor for storage in a commercial warehouse. It was obvious that a cooling system would be required but the engineers decided that no heat would be needed for proper candy storage temperatures. So a 15 ton cooling unit was installed with suitable ductwork for air distribution.

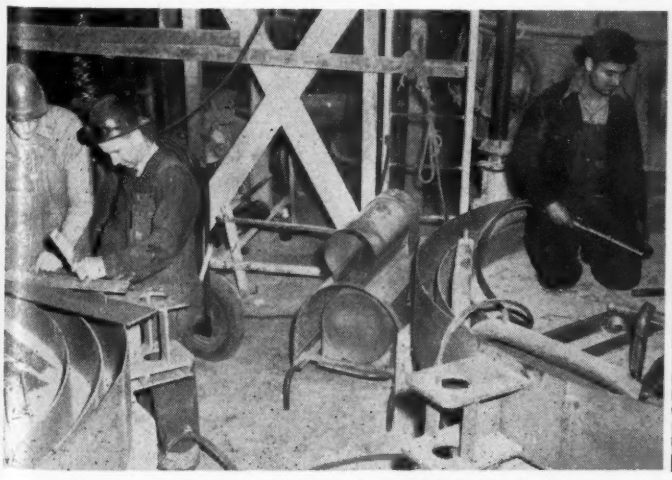
Came November and an unusual temperature drop. The heat calculations had been too lean; a fortune in candy was in danger. The plant engineer called the Allied Construction Equipment Co. for a salamander or some type of heating equipment that could get going fast. Within two hours a Silent Glow portable heater was delivered and in operation, blowing warm air through the cooling ducts. In another hour and a half the temperature rose 17° and the inventory was safe. The plant engineer put it this way, "I never got out of such serious trouble so quickly before in my life."

This incident is typical of literally hundreds that have been related to Ross Sherman and his Silent Glow Oil Burner Co. since they developed a line of portable oilheaters 10 years ago. That's because there are literally hundreds of situations where portable equipment does the most effective job and where an oilheating dealer is limited in his sales only by his lack of imagination for opportunities in his community.

A number of manufacturers turn out portable oilheating units. This story is about some of the experiences of Silent Glow. We ran into a display of the equipment at Sherman's open house party in June. Not only that, but Sherman has done an outstanding job of exploring new applications.

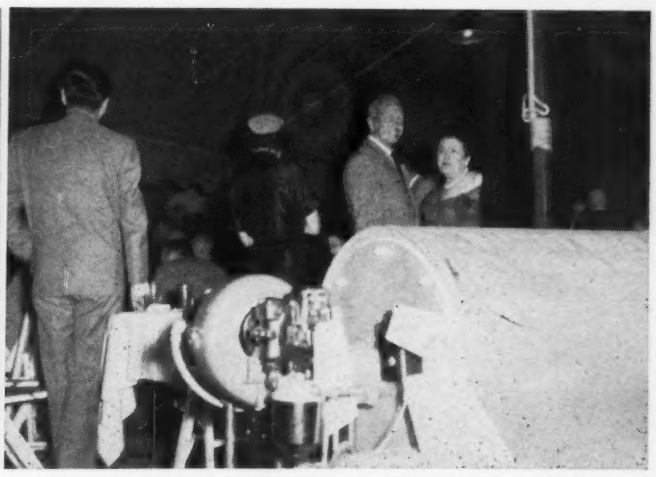
Of course many of these heaters are

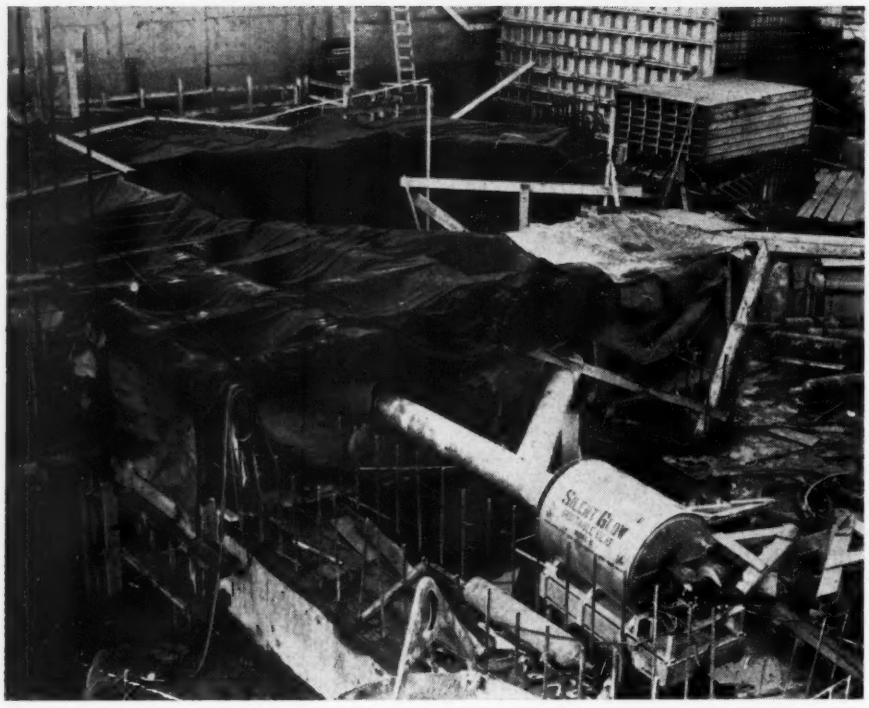
Where men work, *as in the Sheffield Steel mill at Kansas City, portable units go to the assembly jobs.*



Restaurant application *of a portable oilheater. In the evening this unit blows warm air down a corridor to remove the chill from a row of cabin court rooms.*

Movie personalities *at a lawn party moved under canvas because of rain and chill, in which a portable heater saves the day. In this candid, obviously unposed shot are Reginald Gardner, Maureen O'Sullivan, John Farrow and Louella Parsons.*





Drying concrete *in a construction project is one of the most common applications for these heaters.*

rented rather than sold, particularly in the construction industry. Replacing the old salamander for drying concrete or plaster, or preventing its freezing, is the most common application. Small contractors most frequently rent heaters for their buildings, although naturally the big outfits buy quite a lot of them and move them around from job to job.

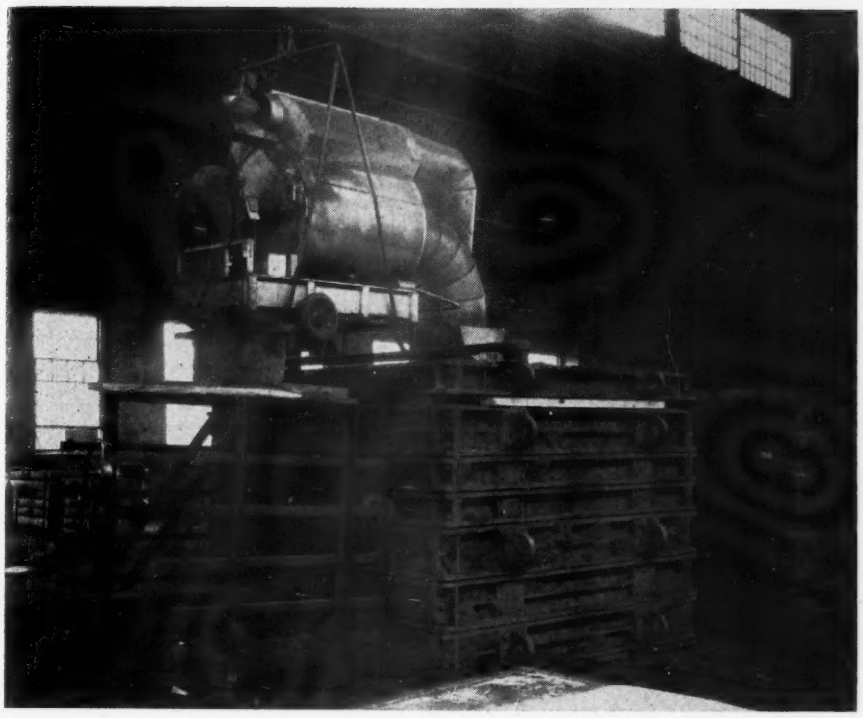
These portable units even move in the social whirl. A prominent actress sent out invitations for a lawn party at her home in Beverly Hills. But her butler was a realist and knew what often happens to the best laid plans of mice and women. He arranged an attractive circus tent for shelter in case of rain. But it turned out even worse . . . it not only rained but it got very chilly before the guests arrived (Florida papers please note) and something had to be done fast.

Ralph E. Bushman, son of the late Francis X, Silent Glow representative in Los Angeles, got wind of the trouble and rushed out with a portable heater, dropped the tent flaps and saved the day. Bushman doesn't miss much. Down at Palm Springs, Calif., they have an annual date festival, festooned with lovely women not overdressed. Two years ago they apparently picked

Heating *a room where concrete is dumped from bins to a conveyor to be carried to the batch mixer . . . an installation at Levittown, Pa.*

For portable Heating your Market is everywhere

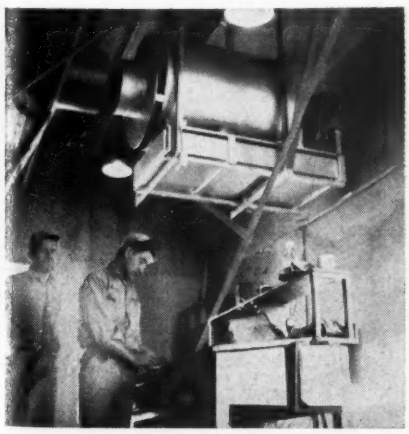
- √ Providing comfortable working conditions on loading platforms and materials handling areas, in shops, sheds, warehouses and other buildings where permanent heating installations do not exist.
- √ Providing temporary or emergency heat when permanent heating systems are undergoing repairs or servicing.
- √ Providing additional or supplementary heat when permanent heating systems do not prove adequate during periods of extreme cold.
- √ Providing heat for all buildings under construction.
- √ Drying and curing—wet sand, plaster, concrete, paint, "soft work" such as steps, sidewalks, floor slabs, footings, etc.
- √ Drying out wet or damp areas. Drying materials used in manufacturing and construction.
- √ Pre-heating all materials which may require "heat-conditioning" before use such as cement and cinder blocks, brick, certain coatings, and other materials which congeal in cold weather (asphalt, tar, oils).
- √ Pre-heating engines, freight cars and all heavy machinery and equipment.
- √ Thawing frozen machinery, pipes, conveyors, hoists, heavy crawler equipment, truck engines, etc.
- √ Dehydrating under all conditions where excess moisture exists.
- √ Providing high drying temperatures for such applications as core ovens in foundries, dry kilns, brick kilns, paint ovens, etc.
- √ Preventing freezing of gates in batching or aggregate bins—eliminates need of dumping bin at end of day.
- √ Defrosting in cold storage, ice cream and ice-making plants.
- √ KEEPING WORKMEN WARM. Don't overlook the human factor. Warm workmen are better workmen. They produce more; they are in a better frame of mind; they are safer workmen. (Statistics prove that accidents and injuries to workmen rise sharply in cold weather.)



Drying molds *in a foundry. Conventional drying of this mold in coal fired ovens was costing $39.85 for a 36 hour typical period. The portable oilheater does it for $14.24.*

the wrong "date" because Ralph had to dash down with a flock of portables to stop the girls shivering and remove the goose pimples.

The heaters are good for greenhouses. Following is a chatty quote from a publication, "Grower Talks." "Remember that big storm last Thanksgiving? Well, like several other growers around Chicago we weren't really looking for five below zero that night. We had a sash house still filled with plants. By noon of Thanksgiving day it was apparent that the several steam lines weren't going to hold it through the night. Thanks to a local contractor friend, we were able to borrow a portable oil heater. We plugged it in, turned on the switch, bundled up in overcoats and waited. Within 10 minutes the unit had raised the temperature in a 150 by 25 ft. house from 36 to 46°. By turning it on once an hour we kept the house well above freezing."



Unit heater *installed overhead in a factory.*

The photographs show several interesting applications of these units. Oilheating dealers should be able to sell quite a lot of them in a typical community, and also there's good money in renting them.

The units come in a variety of sizes with capacities from 186,000 to 350,000 Btu, and at list prices from approximately $300 to $600. Some are designed for large volume air movement at small temperature rise and others move less air but at a high temperature rise.

Airconditioning Approaches three-quarter billion Year

A $750,000,000 RESIDENTIAL airconditioning industry is in the making and may be attained in the next three or four years, according to Ned Cole, of the airconditioning committee, National Association of Home Builders.

Cole said in an address before a recent NAHB meeting, that the industry must consolidate itself and "present a solid front" to reach the three-quarter billion dollar figure, because under present conditions the FHA and VA do not have adequate information and assurance to give the airconditioning field the support, in financing of installations, that it deserves and needs. The goal of NAHB is to make airconditioning available to people in the low and middle income bracket, the $10,000-$12,000 class and below.

"The first step in achieving this solid front," Cole said, "is the pooling of research data by manufacturers, so that a standard base for over-all design requirements can be worked out.

"In the heating industry contractors and builders are able to install systems based on standard measurements of heat loss and heat gain. But in airconditioning industry each manufacturer has his own set of figures on heat losses and other pertinent data.

"That is why the FHA and VA in Washington cannot give the airconditioning field the full support that it deserves. The FHA and VA need a standard to go by. What we need is a streamlined financing plan in order to reach the mass home market.

"It is up to all elements of the airconditioning industry, for their own good and the good of the consumer, to get together."

Richard G. Hughes, an NAHB vice-president and a prominent builder in Pampa, Texas, also in an address before the NAHB meeting, stressed that present government housing agency practice on the local level does not permit design changes which can sharply reduce costs.

Hughes said that such design changes are needed for efficient installation and operation of airconditioning units, particularly for small houses in the lower price brackets.

Hughes felt that a buyer of a modest home should have an opportunity to enjoy the advantages of airconditioning. He also lauded the advances made by the airconditioning industry in design of equipment for the residential market and urged that the trend be continued.

Designing perimeter Heating

Accurate heat loss Computations and Standardization of Parts cut Costs

PERIMETER HEATING, one of the more recent developments in warm air heating, delivers heated air around the outer walls of a home or building. Since this is where most of the cold air enters and is also the point where much of the heat is dissipated from the house, it naturally follows that the application of heated air at this point should be of the greatest benefit.

This type of system, moreover, can be installed very economically in that shorter runs can be used with registers on the inside walls and one or two cold air returns on the outside walls.

The initial step in designing a perimeter heating system, and perhaps the most important, is an accurate computation of the heat loss requirements of the home. Figures 1 and 2 show a typical small house for which a perimeter heating system is to be laid out. Figure 1 gives the dimensions and construction characteristics; Figure 2, the heat loss in Btu's. Using a design temperature of 70° F. inside the structure and an outside temperature of 10° F. below zero, total heat loss is 54,680 Btu.

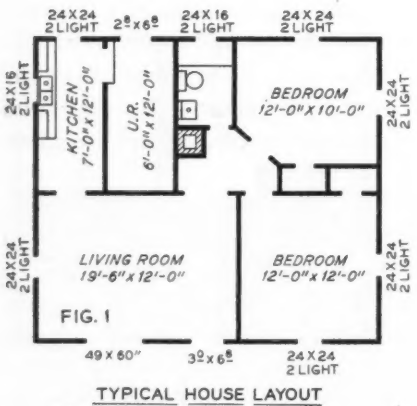


FIG. 1

TYPICAL HOUSE LAYOUT

WOOD SIDING, LATH & PLASTER
1" SHEATHING
1" ROOF BOARDS, 210# ASPHALT SHINGLES
3" INSULATION IN CEILING
NO BASEMENT

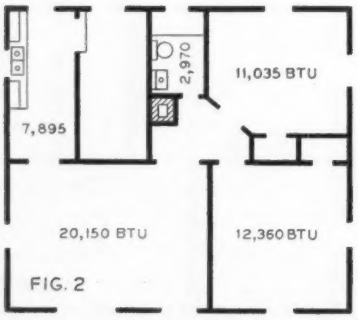


FIG. 2

HEAT LOSS IN BTU'S

TOTAL LOSS 54,680 BTU

Since this is a home without a basement, an oilfired counterflow furnace unit will be used. One with an 80,000 Btu output is the proper size for this job, figuring 70% efficiency. The unit is installed as shown in Figure 3, insulated, as explained, to conform to local building codes.

Leave Room for Servicing

It is well to remember that enough clearance must be provided to permit servicing and the doorways to the utility room where the unit will be installed should be 6 feet high to facilitate removal of the unit should this become necessary.

Also, be sure to equip the utility room with a free air inlet to provide air for combustion. The minimum size of such an inlet is 1 sq. in. for each 1,000 Btu, or in the present installation, 80 sq. ins. Combustion air can come either from the outside of the house or from some other well ventilated room. When the house has a basement, usually there is enough air infiltration to supply the furnace.

There are four types of duct systems that are commonly used with a perimeter heating system: Radial, extended plenum, trunk and branch and crawl space plenum.

In the average small house the radial system in many instances is the most practical. In this system, there is a separate run to each register. See Fig. 4. However, sometimes it may be better to use the extended plenum system. When the house has a basement, the piping can be concealed more readily with the trunk and branch or the extended plenum systems. If the heating unit is at one end of the house, the trunk and branch should be used. In this system the trunk line takes off the plenum chamber and as each branch is taken off, the trunk is reduced in size. See Fig. 5.

If the unit is in the center of the house, the extended plenum usually is more economical because it involves less labor and sheetmetal work. In this system the plenum chamber is extended both ways and the ducts are taken off where needed. The extended plenum is not reduced in size. See Fig. 6.

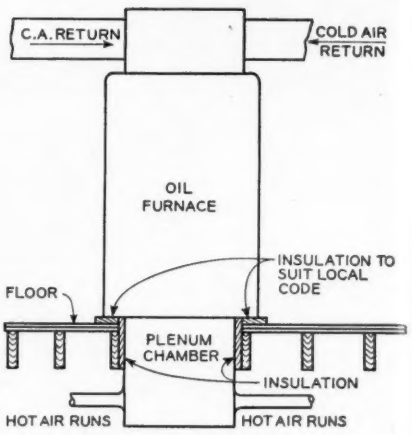


FIG. 3

Fig. 7 shows the crawl space plenum system. The heated air is discharged into the crawl space. The crawl space then acts as the plenum chamber and spreads the heat to the registers. The space must be prepared as shown in the diagram for this system to work. This system has disadvantages simply because it is almost impossible to make the crawl space airtight. This can result in excessive fuel costs and an unhappy customer. The money saved in sheetmetal will be more than offset by the cost of preparing the crawl space and the end result will not be as good a job.

For the house shown in Fig. 6 either the radial system or the extended plenum system could be used. The reason for using the radial system in this case is the ease of installation.

Perhaps the biggest problem that the average heating contractor has to solve is labor. By using the radial system, the need for highly skilled mechanics is eliminated. With a simple layout, almost anyone can install this type of a job and be assured of a successful installation. One skilled mechanic to set up the oilburner is about all the skilled help that is needed.

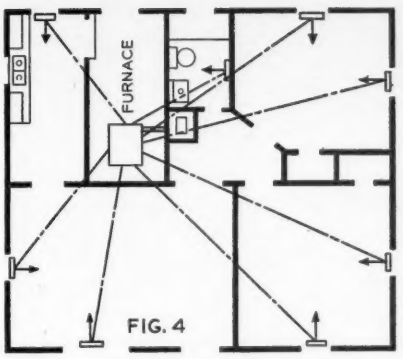


FIG. 4

RADIAL SYSTEM

ALL HEAT RUNS 4" ROUND 10x6 DIFFUSER REGISTERS

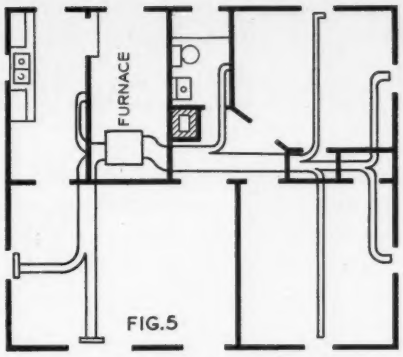


FIG.5

TRUNK AND BRANCH SYSTEM

NOTICE HOW TRUNK IS REDUCED IN SIZE AS BRANCHES ARE TAKEN OFF

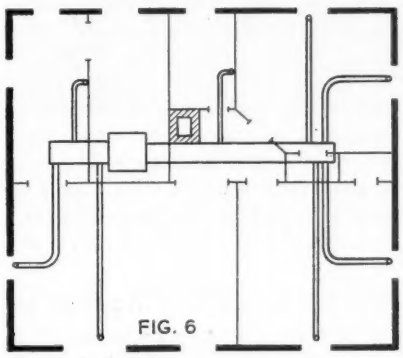


FIG. 6

EXTENDED PLENUM SYSTEM

TRUNK SIZE REMAINS CONSTANT BRANCHES ARE ROUND PIPE

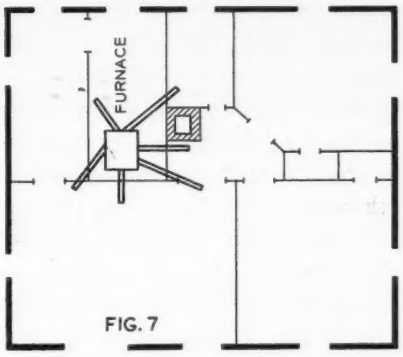


FIG. 7

CRAWL SPACE PLENUM

SHORT PIPES ARE USED TO DIRECT WARM AIR TOWARD PERIMETER REGISTERS

The layout shown in Fig. 8 is a sample of the kind of sketch that should accompany each job. As can be seen from this diagram the installation is simplicity itself. All the warm air ducts are 4 inches in size and all the registers are 10 x 6 wall variety. These registers should be of the diffuser type construction to assure that the outside walls are blanketed with warm air.

If the job is a new installation the mechanic can install the stack heads and the boots together with the plenum when the house is in the rough. This is the most economical time to do this part of the job. When the house is completed all that remains to be done is to install the registers, the furnace and oil tank.

When the installation is in an older house it sometimes is a little more difficult to install the stackheads in the wall. If the customer does not insist on wall registers however, it is very simple to install floor registers. Apart from the problem of the registers there is very little difference between a new or old installation.

Fig. 9 is a table that gives the sizes of piping and Btu's that this size of piping will carry in relationship to the length of the duct.

The fact that 4 inch pipe has been used in the installation discussed here does not mean that it is the only size that can be used. If the contractor has a sheetmetal shop, any standard can be set up. The only difference will be in the amount of heat that the different sizes of pipe will carry. It is easy to see that if one size of piping is used, together with one size of registers, all the stackheads will be standard as will all the other fittings that are necessary to install a job. Here again the prime object is the simplification of the installation and the elimination of skilled help.

As can be seen on the plan in Fig. 8, there is no provision for heat in the utility room. There will be enough radiated heat from the furnace and chimney pipe to bring this room up to a comfortable temperature. Should this prove unsatisfactory, it is a simple matter to add a warm air run.

The size of the return air ducts usually is based on the capacity of the heating plant. This, for the sake of simplicity, is the easiest way. The table in Fig. 10 shows the amount of free area in square inches needed for the return systems of the various sized furnaces. This can be divided up to suit, but the return air from one part of the building should be in direct proportion to the amount of heated air supplied to

(*Please turn to page 158*)

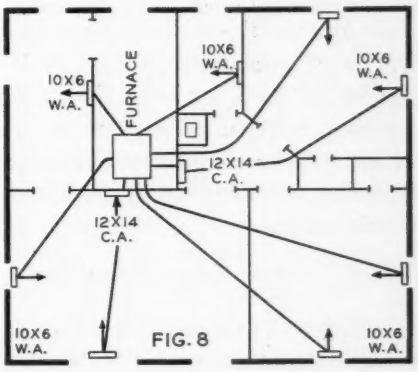


FIG. 8

TYPICAL RADIAL INSTALLATION

WITH 4" ROUND BRANCHES AND TWO COLD AIR RETURNS

Fig. 9—Capacity of Piping in Btu's

Length of Pipe	*5 Feet*	*10 Feet*	*15 Feet*	*20 Feet*	*25 Feet*
1 Ell	2500	2400	2200	2000	1820
2 Ells	2400	2200	2070	1900	1700
3 Ells	2300	2070	1975	1800	1650
4 Ells	2200	2000	1900	1720	1600
5 Ells	2070	1950	1800	1650	1550

Static Pressure Head For Above Factors .20 Inches
If 4 inch Supply Ducts Are Used Multiply Factor by 4
If 6 inch Supply Ducts Are Used Multiply Factor By 6
If 8 inch Supply Ducts Are Used Multiply Factor By 8

Fig. 10

Output in B.T.U.	NUMBER OF RETURNS					
	1	2	3	4	5	6
0 - 50M	125	150	165	180	—	—
50M- 60M	180	190	210	230	255	—
60M- 75M	215	235	260	280	300	—
75M- 90M	265	288	320	360	384	—
90M-100M	—	332	366	400	440	—
100M-130M	—	—	600	680	740	—
All Sizes In Sq. Inches	The Area Listed Above Must Be Return Duct & Grille Free Area					

Honeywell's "Round" Thermostat uses enclosed mercury Switch

THE NEW ROUND T86 thermostat, developed by the Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., represents the only major change in thermostat appearance since the first bi-metal control was introduced. In addition to its round shape, the T86 incorporates a sensitive low voltage non-magnetic mercury switch, bi-metal actuated thermometer, adjustable temperature control range with stops, fixed differential, adjustable heater for improved time modulation operating characteristics and a "decorator" feature.

The round snap-off cover of the T86 is smooth and contains no slots, which makes the cover easily adaptable to painting or papering. Decorations will not interfere with the mechanical parts of the thermostat and it is not necessary to remove the thermostat base. Because the thermostat now can be placed attractively on the wall, locations are more apt to be chosen for proper sensing of room temperature than trying to conceal the thermostat in order not to impair the appearance of the room.

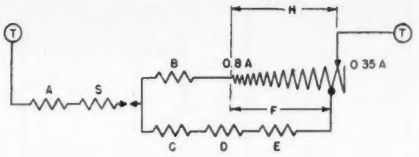
Dual Purpose temperature Scale

Room temperature indication is accomplished on a bi-metal thermometer, with the same scale serving for both thermometer and thermostat setting. Normally the temperature indicator and set point will coincide and control always will be in the "12 o'clock" position.

Another feature of the T86 is adjustable stops provided for selecting upper and lower limits of control point settings, permitting the setting of temperature limits within practical ranges and still allowing freedom of control point selection. In the case of apartment houses or commercial buildings, a single control point can be set and locked.

Next the T86 incorporates as standard, a non-magnetic mercury switch, to achieve the trouble free service that is possible with contacts completely enclosed within a sealed mercury switch. The T86 has been designed for the operational requirements of time modulation, a term applied to a thermostat which will effectively produce a planned pattern of burner off and on cycles per given time unit to approach a modulating heat delivery rate to match the heat losses for any given load. The length of the off period being directly proportional to the length of the on period for any given load, it follows that if both periods are shortened more cycles of burner operation per given time unit results and the time modulation characteristic is achieved.

A thermostat employing an electrical heating element, which when energized, causes the bi-metal temperature to rise above the room temperature has inherent desirable characteristics for home heating. Thermostats which do not have heaters must sense a rise or fall of room temperature during each cycle. A heater type thermostat, however, does not depend upon a change of room temperature to cause cycling, but rather anticipates the delivery or non-delivery of heat to prevent over and under-shooting of control point temperatures. This type of

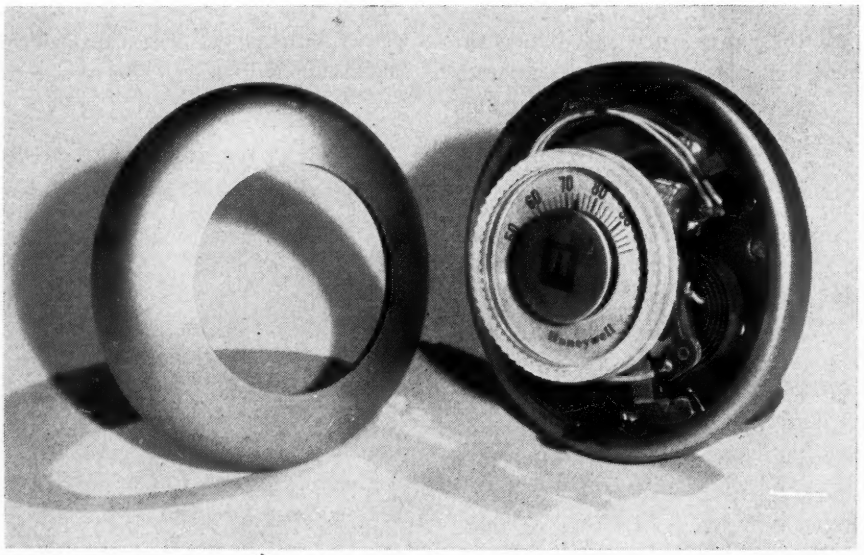


Circuit diagram *to illustrate the bi-metal heating arrangement in the T86 thermostat allowing a simplified adjustment to match the current draw to all primary controllers without changing heater plugs. Resistances listed are average values of the components falling within engineering specifications: A equals 0.016 ohm, lead wire resistance; B equals 0.019 ohm, lead wire resistance to heater; C equals zero ohm, contact resistance; D equals 0.003 ohm, lead wire to element; E equals 0.151 ohm, bi-metal element resistance; F equals 0.980 ohm, fixed portion of heater resistance; H equals 1.4 ohm, maximum variable heater resistance; S equals 0.028 ohm, switch resistance.*

thermostat can be made to cycle at the desired frequency to satisfy conditions demanded, actually modulating the heat input in accordance with the load by varying the burner cycling rate. The time modulation type thermostat also has the inherent characteristic of apparently shifting control point with a change of load.

Honeywell engineers have amassed information on the operation of a time modulating thermostat, which demon-

(*Please turn to page* 159)



A single dial *features Honeywell's new "Round" thermostat, shown here with its cover removed. Temperature setting is accomplished by turning the knurled plastic knob; room temperatures are indicated on the same scale and in this photograph both indicators coincide. An enclosed mercury switch is shown in the upper right of the exposed control.*

Oilheating display *in the showroom window of the F. C. Haab Co. in Philadelphia.*

Everybody sells

Haab's use the user Plan puts the Servicemen in the Act

THE MAGIC of a ten dollar bill has been the lure used successfully for the past few heating seasons by F. C. Haab Co., Inc., Philadelphia, distributor for Williams Oil-O-Matic, in securing numerous productive sales leads from its customers. Coupled with this, a supplementary program lets the servicemen and other employees qualify for ten dollar bonuses by turning in prospects for burner replacements which the regular salesmen follow.

"We get a great many leads from these sources," says Raymond G. Ritting, Haab's sales manager, "that are converted into sales, because our servicemen and employees are constantly on the lookout for these money-making opportunities." If an employee hears a relative, neighbor or friend discussing heating they have been trained to turn in the lead. The servicemen, of course, have greater opportunity from their regular visits to both contract and non-contract service customers to locate burners that need replacing. For each of these leads that result ultimately in an actual sale, the employee receives his $10 premium.

The same payment is made to customers who furnish the names of prospects, providing a salesman succeeds in making the sale. Ritting reports that 40% of all of Haab's new business comes from regular customers, resulting from a hard-hitting direct mail program that explains the plan.

"Just before the heating season opens," says Ritting, "we conduct a concentrated direct mail campaign telling our customers that they can earn $10 for the names of prospective Williams Oil-O-Matic oilburner purchasers. As a result our 11 salesmen are kept busy following up 'live leads' rather than cold canvassing, making their time and efforts more profitable."

Included in the campaign are eye-catching letters to each customer, about three or four mailing pieces being sent out about three weeks apart. One letter, for example, had a bright new penny attached to it, with the message "A Penny for Your Thoughts," followed by the explanation that a thousand pennies can be earned by turning in the names of oilheating prospects. With this letter, as with the others, a prepaid postcard is enclosed for listing the names of the leads.

Another mailing piece that has been successful offered "$10 pin Money for You," a small safety pin affixed to the letter serving as an eye-catcher. The text of this letter, typical of those which have been used, reads:

"We are again offering you $10 for the names of prospective Williams Oil-O-Matic oilburner purchasers. Just send us the name of one of your friends or neighbors whom you know to be interested in automatic heating. Our representative will then call on them and without obligation make a survey of their heating needs.

"Should we sell this prospect a Williams Oil-O-Matic oilburner, we will in turn send you a check for $10 as soon as the installation is completed.

"Use the enclosed postage free card and we will do the rest."

Haab also uses a blotter that promotes the $10 payment for leads. It is inserted in each bill that goes out monthly to the company's 6,000 fuel-oil customers and this has proved helpful in maintaining a year-long source of prospects.

Ritting explains that the plan has been a success because "hundreds of ten dollar bills have been given out and some customers, as a matter of fact, make it their business to be on the lookout for heating prospects so that they may earn extra money."

Contest for Servicemen

Since the bonus incentive has been in effect for the servicemen many of Haab's salesmen have learned to rely heavily on the leads they turn in as a method of compiling an active and productive list of prospects for burner sales. As an added inducement, during the months of January and February each year the serviceman whose leads result in the largest number of actual sales gets a $50 award. Again the activity resulting from this phase of the program is beneficial in two ways—it stimulates the servicemen to be more alert for sales possibilities and creates more follow-ups for the salesmen during these normally slow months.

Incentive plans extend to the salesmen, too, providing bonuses over and above their regular commissions. Sales quotas are established for each Ritting explains, and, "If the salesman makes his monthly quota or exceeds it, he gets an additional 2% over-ride on his sales. And, if he meets his quota for four consecutive months he gets an extra $50." A chart is kept in the sales-

(*Please turn to page* 162)

Servicing central cooling Units

Part II: Components of a residential System, their Functions and Problems

by
Maurice R. Eastin*

THE MECHANICAL refrigeration system that is used in most residential airconditioning jobs consists of the following parts: receiver, liquid line, expansion valve, evaporator, suction line, compressor, condenser, and heat exchanger. This article will discuss each of these individual components, their functions and problems.

The receiver is shown in Fig. 1. It is a tank usually, resting horizontally with an inlet pipe coming in at the side or top. The outlet pipe goes out the top of the tank and the entrance to the pipe must be very close to the bottom of the receiver. The receiver acts as a liquid trap or reservoir and is located near the lowest point in the system. A receiver is usually large enough to hold the full charge of Freon in case the system is "pumped down" for repairs.

The liquid line carries liquid Freon under high pressure from the receiver to the expansion valve. It needs to be only about one-third of the diameter of the suction line for this reason. Since the piping is all closed, at any condition of steady flow the same weight of Freon will pass one point in the system in the same time as another. Therefore, since the volume of the vapor in the suction line is many times greater than the liquid in the liquid line, the suction line must be of greater cross-section than the liquid line.

The suction line handles the Freon vapor from the evaporator to the suction or inlet valve of the compressor and in 5 ton installations is usually of 1½ to 2 in. diameter.

The liquid line is not insulated as this helps to cool the liquid Freon in its passage from the receiver to the expansion valves.

The opposite is true of the suction line. Any heat that is added to the Freon vapor beyond the evaporator does not help to cool the space in the least and must be removed later in the condenser as an "extra load" or "inefficiency load." The suction line may therefore be insulated to prevent the absorption of heat.

The suction and liquid lines usually are wrapped together so that the transfer of heat from the liquid line can be increased. Heat cannot be destroyed or created but only transferred.

As a result wrapping the liquid line with the suction line cannot reduce the load on the compressor or increase the compressor efficiency, but it can and does reduce the temperature of the liquid before the expansion valve. This makes possible an increase in the refrigerating effect of Btu's removed from the air. The total heat absorbed has not changed but a greater percentage is useful absorption through this heat exchange.

A formal method of making this heat exchange can also be applied. It is called the heat exchanger and its physical appearance is that of an enlarged liquid line coiled around the suction line. The effect of this device is to reduce the temperature of the hot liquid Freon just before it enters the expansion valves, thereby increasing the refrigerating effect. The heat exchanger reduces the liquid line temperature approximately to atmospheric temperature.

Since the expansion valve has a thermal bulb located between the heat exchanger and the suction line, the effect is to make use of the maximum of evaporator surface—still leaving a margin of safety to assure that Freon liquid does not enter the suction line.

To understand the real value of a thermostatically - controlled expansion valve, the designer's problems should be mentioned briefly. A designer selects a condenser, evaporator, and compressor to work together and balance each other within the summer range of atmospheric temperatures and heat loads. The designer develops a system for a heat load between certain upper and lower limits and selects a condenser and compressor to take care of the maximum load.

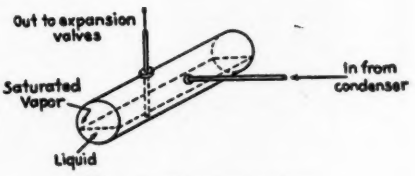
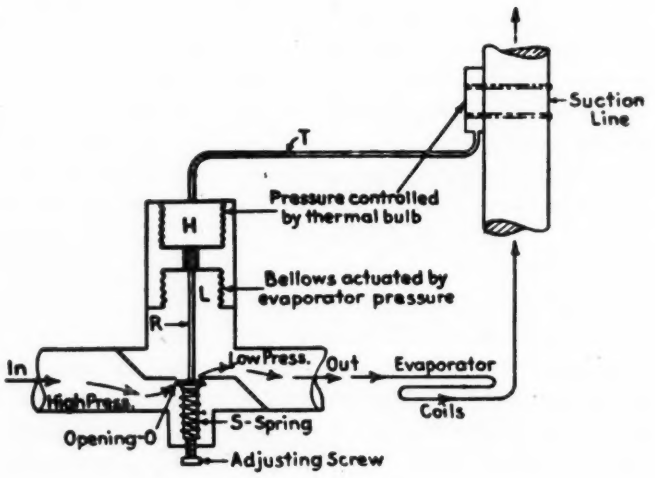


Fig. 1. *Freon receiver.*

Unless it is desired to run the system at maximum capacity at all times, the amount of Freon through the evaporator under various heat loads must be controlled by boiling the Freon only within the confines of the evaporator, without allowing liquid to spill over into the suction line, or without starving the evaporator.

The expansion valve automatically adjusts the amount of liquid admitted to the evaporator for the refrigerating load, thereby making possible a balance between evaporator, condenser and compressor. As a fundamental part of the system it also forms a barrier be-

Fig. 2. *Cross-section of a thermostatic expansion valve showing its connection to the thermal bulb applied to the suction line.*



*Sales Manager, Control Div., Perfex Corp., Milwaukee, Wis.

tween the high and low pressure portions of the system.

Any calculations made by the designer must depend on the refrigerating effect, or, in other words, the quantity of heat that each pound of Freon will absorb on its pass through the evaporator. The thermostatically-controlled expansion valve can be said to control or rather assure the refrigerating effect under all heat loads.

The thermostatic expansion valve is actuated by both evaporator pressure and temperature in a combination which results in the valve being responsive to the superheat of the vapor leaving the evaporator or heat exchanger.

In a very narrow sense, the expansion valve can do nothing about the Freon elsewhere in the system. It must take the Freon as it gets it and control the boiling or evaporation within the evaporator. By controlling the superheat of the Freon the valve acts as a guard to see that the Freon does not get out of its evaporator prison until it has served its time at the hard labor of boiling violently and completely and absorbing all the heat possible.

Workings of an expansion Valve

Varying pressures on either side of the valve must be taken as a matter of course. Its only power is to see that a certain superheat is added to the Freon before it goes on its way. How does it do this? Refer to Fig. 2 for a simple diagram of the inside workings of any thermostatic expansion valve.

For a saturated vapor there is a definite pressure for every temperature. This fact is made use of as the basic principle of the expansion valve.

As shown in Fig. 2 the valve consists essentially of a rod and a guide. Mounted on this rod, R, are a valve disc working on seat, O, and attached thereto is a spring, S. The valve rod is actuated by two bellows, H and L. H works against springs; S and L works with it.

Now what causes both of these bellows to exert force on rod R? The source of the force on the bellows L is quite obvious. The pressure of the Freon within the evaporator is exerted directly on the bellows L.

Within the combined enclosures of

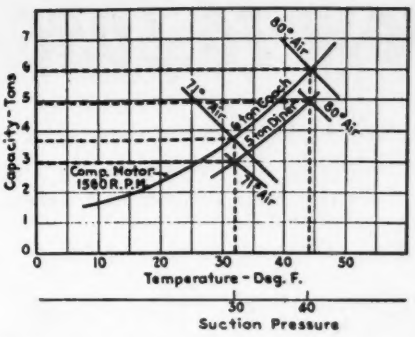


Fig. 3. *Relation of capacity to temperature and suction pressure for unregulated type system.*

bellows H, tube T, and thermal bulb B, there is also Freon—saturated vapor and liquid. Since the area of bulb B is the controller or the part of the H.T.B. combination that determines the condition of the Freon within it, the pressure within this bulb, bellows and tube is always dependent on the temperature at bulb B. Therefore, the pressure in the bellows H is determined by the temperature at bulb B's position on the suction line going out of the evaporator.

To illustrate the forces that are exerted on rod R—the rod that has the valve disc V attached to the end of it —we offer a sample condition:

Say that the suction pressure is 40 lbs. and the resulting temperature of the evaporator will be 44° F. Referring to Fig. 2 this pressure of 40 lbs. will be exerted on bellows L. There is, also, the condition of some superheat or extra temperature above the boiling point at the suction line which must be considered. For example, let's set up 10° of superheat, or in other words, a temperature of 54° at the thermal bulb. The Freon within the thermal element strapped to the suction line will be at the pressure corresponding to the 54° temperature, approximately a pressure of 50 psi exerted on bellows H.

With 40 lbs. in L and 50 lbs. in H, there is a difference in pressure of 10 lbs. exerted on rod R. This difference of 10 lbs. is opposed only by spring S.

By adjusting spring S, rod R can be balanced—or actually valve seat V—causing it to float in one position due to all forces upon it canceling out and establishing equilibrium. Such balancing action results in opening O, which in turn gives a definite superheat for any single spring pressure.

There is some pressure drop due to the friction of flow in all Freon lines but we have not considered it in this discussion. There is some drop in pressure between the valve and the evaporator outlets, too, but the discussion of this detail would only confuse the picture of the valve's operation.

The only effective absorption of heat from the air takes place within the evaporator.

Since in the normal inspection operation the serviceman does not have the thermometers or time to record all of the data on the condition of the atmospheric and space air necessary to get a clear and complete picture of the air, this angle will not be discussed. However, do not get the idea by this omission that there is any mystery connected with it.

Normally only the dry bulb temperature will be taken during the inspection of a system. This is the temperature recorded by the simple thermometer.

However, there is another temperature that is important. It is known as the wet bulb, and it is that temperature read on a simple thermometer in a stream of moving air with its bulb covered with a wetted wick. The difference in reading between the dry bulb and wet bulb thermometers both in the same stream of air can be used to determine the amount of moisture (water vapor) in the air.

It also has been found that the total heat content of humid air depends on the wet bulb temperature alone. The wet bulb temperature rises along with the dry bulb temperature when air is

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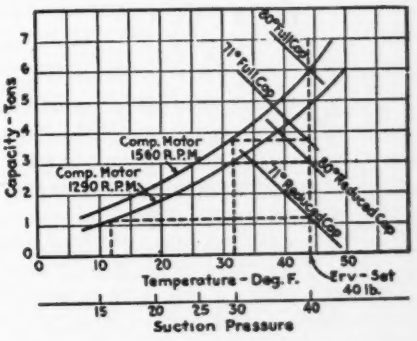


Fig. 4. *Relation of capacity to temperature and suction pressure for a regulated type system using evaporator regulating valve.*

TIPS ON HOW TO LOSE SALES . . .

These illustrations were inspired by the captions, which first appeared in a weekly sales letter written by A. T. Thompson, vice president and general manager of Fueloil and Equipment Limited, TSA dealers in Toronto, Ont.

1 "Our first, most important tip, submitted by the company's least productive salesman is DON'T PLAN YOUR WORK. No Sir, don't do it! Instead, get up in the morning when you're darn good and ready (the later the better) and roll into the office to miss the sales meeting. Regardless of how thick a sales manager is, you just might pick up a tip, and this is to be carefully shunned."

2 "If possible, read the morning paper over a cup of coffee until you are chased out of the office. If you are thrown out before you finish your favorite comic, go to the nearest restaurant and carry on."

5 "Don't smile when you talk to a prospect. If you have truly mastered the unplanned approach it is unlikely you will have time to call on more than two or three customers in a day. This helps reduce your sales. However, when you do call on a prospect be sure to ignore the bell and bang loudly on the door (a good kick is useful here) and greet the customer thus: 'The office tells me you want to buy an oilburner. Is that true?' Sound quite amazed as if the customer were stupid. This should discourage anyone but a moron, but if you are invited in . . ."

6 "Don't comment on a tidy home, pretty child, or anything of which you think the customer is proud. Once inside (with your hat on, of course) drop ashes on the rug and look around with your best expression of disgust. If you see anything lying around, or dirty dishes, forget you are interrupting a busy housewife and stare at the mess with complete amazement. This is reasonably certain to burn her, but if she *still* wants to know about the burner . . ."

Reprinted from "Timken Heat", published by the Timken Silent Automatic Div. for its sales and service organizations.

. . . IN JUST EIGHT EASY LESSONS

3 "If you can arrange to forget to pick up your calls for the day and must go back to the office for them, that's just dandy. Better still, don't remember them until you have driven at least three miles from the office. Under no circumstances should you arrange your calls in geographical sequence, and scheduling them is absolutely taboo."

4 "Whenever possible be late for appointments made for you by the office. Never make any appointments yourself (you can always avoid making appointments by mumbling 'Call me if you make up your mind')."

7 "Don't give the customer a chance to talk. Start out smartly with a detailed account of the advantages of the thingamadeufer of the youguessthenameandyouvewonit and keep on talking. Under no circumstances must you allow the customer an opportunity to hint why she wants automatic heat. While the importance of this cannot be over-emphasized, there is always a chance you will run out of breath and that she will slip in a word that she's tired of lugging ashes and has heard of the remarkable savings possible with a TSA. Ignore her. Go on talking about the thingthatgetsthedamthingstarted. If she is so rude as to try and interrupt with a question, parry with a frosty stare and go right on talking (louder, of course). Some people are mighty persistent, and you may not have completely discouraged this one. If not . . ."

8 "Run your company and your product down. This is a sure-fire sales killer. First, in discussing price, say 'I know it's a lot of money and I've told the company I can't sell it at that price, but they won't cooperate.' Follow with 'Our oilburner service has improved a bit but if you have any trouble, better call your local man.' The clincher is, 'Actually, if I weren't paid a salary I'd go and work for XYZ oil, but they pay their men a straight commission, and not many people are buying oil heat . . . But this doesn't interest you, Brother'."

Range Oil Sales By Grades and States U. S. Bureau of Mines

(Thousands of 42-Gallon Barrels)

	Kero-sene	No. 1 Fuel	Total 1952	1951
NEW ENGLAND STATES				
Massachusetts	11983	761	12744	13479
Connecticut	4851	280	5131	5251
Rhode Island	2661	121	2782	3028
Maine	2872	218	3090	3112
N.Hampshire	1340	103	1443	1525
Vermont	604	49	653	854
	24311	1532	25843	27249
MIDDLE ATLANTIC STATES				
New York	8140	592	8732	10489
New Jersey	4046	481	4527	5481
Pennsylvania	2335	317	2652	2937
Maryland	1482	59	1541	1489
Delaware	529	15	544	664
Dist. of Col.	234	3	237	232
	16766	1467	18233	21292
MIDDLE WESTERN STATES				
Illinois	3483	3072	6555	6936
Michigan	3550	1785	5335	4667
Wisconsin	1674	1536	3210	3319
Indiana	2465	865	3330	3397
Minnesota	1634	1090	2724	2666
Missouri	1601	788	2389	2448
Iowa	1709	668	2377	2502
Ohio	1665	581	2246	2126
Nebraska	698	186	884	830
S. Dakota	612	130	742	806
Kansas	737	179	916	906
N. Dakota	676	49	725	661
	20504	10929	31433	31264
WESTERN STATES				
Colorado	243	133	376	299
Montana	186	151	337	286
N. Mexico	202	16	218	261
California	67	..	67	74
Idaho	35	64	99	83
Wyoming	81	14	95	87
Utah	19	31	50	45
Oregon	9	..	9	10
Washington	5	..	5	6
Arizona	4	..	4	2
Nevada	1	..	1	1
	852	409	1261	1154
SOUTHERN STATES				
N. Carolina	7484	105	7589	4458
Texas	1881	505	2386	2826
S. Carolina	3203	55	3258	2075
Georgia	1826	91	1917	1898
Virginia	1995	96	2091	1926
Florida	1682	69	1751	1800
Tennessee	1529	65	1594	1568
Arkansas	954	97	1051	1050
Oklahoma	829	113	942	1012
Louisiana	685	79	764	747
Alabama	798	29	827	764
Kentucky	772	294	1066	913
Mississippi	538	12	550	524
W. Virginia	257	..	257	327
	24433	1610	26043	21888
TOTAL UNITED STATES				
U. S. Total	86866	15947	102813	102847

1952 heating oil Sales show Gain in U. S. Bureau of Mines Report

SALES OF distillate fueloil continued to gain in 1952, but at a lower rate than in 1951, while residual fueloil and kerosene totals showed a nominal decline, according to a survey made by the Petroleum and Natural Gas Branch, Fuels and Explosives Div., Bureau of Mines, U. S. Dept. of Interior. Deliveries of distillate fueloil to consumers in 1952 were 7% above 1951, higher by only half the percentage gain reported in 1951. A decline of 1% in the residual fueloil market in 1952 contrasts with a 2% increase in 1951. The amount of kerosene sold last year was slightly below the 1951 total.

During the first five months of 1953 the Bureau's Monthly Petroleum Statement reveals requirements for distillate grades of fueloil less than 3% over the comparative 1952 total, increasing domestic requirements for heavy grades as evidenced by a 4% increase over 1952, while kerosene demand was almost 2% below the first five months of 1952.

Greatly expanded exports in 1951 were not repeated in 1952, except for distillate fueloil, the total for which was 50% above the 1951 foreign demand. Overseas shipments of residual fuel were lower by 4% in 1952; kerosene exports gained 16%.

All principal uses of distillate fueloils showed gains in 1952 over 1951, except quantities delivered to gas and electric power utilities and the No. 1 grade sold for range burner fuel.

Number of domestic oilburners in use increased by 10% in 1952. With weather 5% warmer, sales of distillate fueloils—Nos. 1, 2, 3 and 4—were higher by less than 6%.

Percentagewise, distillate fueloil sales during 1952 were divided: Heating oils, 55%; railroads, 14.2%; miscellaneous uses, 9.6%; industrial, 8.9%; vessels, 3.6%; No. 1 fueloil sold as range oil, 3.3%; armed forces, 2%; gas and electric power plants and oil company fuel, both 1.7%.

Slightly lower sales of residual fueloils in 1952 were due largely to the rapidly declining demand for such fuels by the railroads and smaller requirements for heavy fueloils by the military forces. Other uses remained pretty much the same as in 1951.

Industrial use of residuals accounted for 28.5% of sales in 1952; vessels were second with 19.9% and residual oils used for heating were third with 14.2%.

Sales of kerosene in 1952 remained at practically the same level as 1951. There was little change in the quantities indicated as sold for range oil in the two years, however that used for tractor fuel in 1952 was 11% below 1951 requirements and kerosene delivered for "all other uses" in 1952 was slightly less than the 1951 total.

Range oil, which can be either kerosene or No. 1 fueloil, registered no appreciable change in volume during 1952, but the kerosene in the total made a minor increase in quantity in 1952 while the No. 1 fueloil was lower by 2% last year, compared with 1951.

Fueloil Sales 1948-52 by Uses

(In Millions of Barrels)

DISTILLATE 1948	1949	1950	1951	1952	USES	RESIDUAL 1948	1949	1950	1951	1952
200	190	221	250*	263	Heating	59	60	73	76	79
14	12	15	16	16	No. 1 sold as range	..	..	..	..	..
31	39	49	60	68	Railroads	90	63	61	55	40
15	13	12	14	17	Vessels	96	89	93	107	111
15	13	13	10	8	Utilities	57	80	93	71	71
30	26	37	43*	43	Industrial	118	123	148	157	158
4	4	6	8*	8	Oil Company Fuel	57	52	53	54	54
9	6	7	8	10	Armed Forces	25	23	28	38	37
25	26	35	40	46	All other uses	7	4	5	5	6
343	329	395	449	479	Total United States	509	494	554	563	556
21	12	13	22*	34	Exports	13	13	16	29	28
364	341	408	471	513	Grand Total	522	507	570	592	583

Heating Oil Sales
By Grades and States
U. S. Bureau of Mines

(Thousands of 42-gallon barrels)

1952				Total Distillate		NEW ENGLAND STATES	1952		Total Residual		Grand Total	
No. 1	No. 2	No. 3	No. 4	1952	1951	1	No. 5	No. 6	1952	1951	1952	1951
914	22,591	258	3	23,766	22,689	Massachusetts	1,768	6,044	7,812	7,606	31,578	30,295
968	8,319	76	284	9,647	9,315	Connecticut	1,597	2,851	4,448	5,031	14,095	14,346
146	3,370	8	2	3,526	3,380	Rhode Island	362	2,183	2,545	2,606	6,071	5,986
238	3,095	..	..	3,333	3,187	Maine	52	350	402	260	3,735	3,447
110	2,843	10	..	2,963	2,728	New Hampshire	32	165	197	191	3,160	2,919
54	837	27	..	918	896	Vermont	6	61	67	69	985	965
2,430	41,055	379	289	44,153	42,195		3,817	11,654	15,471	15,763	59,624	57,958
						MID-ATLANTIC STATES						
No. 1	No. 2	No. 3	No. 4	1952	1951	2	No. 5	No. 6	1952	1951	1952	1951
2,114	39,248	1,139	787	43,288	41,442	New York	2,661	13,147	15,808	15,455	59,096	56,897
1,115	20,342	780	941	23,178	22,215	New Jersey	2,491	4,467	6,958	7,108	30,136	29,323
1,626	18,660	879	73	21,238	19,796	Pennsylvania	1,759	2,312	4,071	3,817	25,309	23,613
492	8,226	20	85	8,823	8,581	Maryland	362	1,734	2,096	1,845	10,919	10,426
282	2,424	..	53	2,759	2,471	Dist. of Col.	275	1,146	1,421	1,257	4,180	3,728
124	1,363	..	..	1,487	1,335	Delaware	115	278	393	232	1,880	1,567
5,753	90,263	2,818	1,939	100,773	95,840		7,663	23,084	30,747	29,714	131,520	125,554
						MIDDLE WESTERN STATES						
No. 1	No. 2	No. 3	No. 4	1952	1951	3	No. 5	No. 6	1952	1951	1952	1951
2,885	9,517	2,739	66	15,207	14,259	Illinois	3,549	3,351	6,900	6,690	22,107	20,949
2,857	9,520	767	72	13,216	11,362	Michigan	1,095	1,785	2,880	2,919	16,096	14,281
1,905	8,097	604	62	10,668*	10,197	Minnesota	630	482	1,112	798	11,780	10,995
1,144	5,617	637	27	7,425	7,278	Wisconsin	484	311	795	811	8,220	8,089
2,633	3,552	126	558	6,869	6,852	Ohio	474	352	826	866	7,695	7,718
1,870	3,187	786	9	5,852	5,627	Indiana	872	650	1,522	1,075	7,374	6,702
1,867	3,734	109	1	5,711	5,229	Iowa	410	149	559	560	6,270	5,789
907	2,861	348	15	4,131	3,915	Missouri	1,663	724	2,387	2,354	6,518	6,269
673	1,363	228	5	2,269	2,120	Nebraska	143	49	192	201	2,461	2,321
185	1,081	45	1	1,312	1,210	North Dakota	7	24	31	32	1,343	1,242
480	760	62	2	1,304	1,302	South Dakota	19	72	91	89	1,395	1,391
542	672	31	5	1,250	1,197	Kansas	487	168	655	676	1,905	1,873
17,948	49,961	6,482	823	75,214*	70,548		9,833	8,117	17,950	17,071	93,164	87,619
						WESTERN STATES						
No. 1	No. 2	No. 3	No. 4	1952	1951	4	No. 5	No. 6	1952	1951	1952	1951
5,356	..	5,654	..	11,010	10,596	Washington	2,415	727	3,142	3,034	14,152	13,630
2,615	..	3,073	..	5,688	5,677	Oregon	1,544	356	1,900	1,581	7,588	7,258
2,081	..	3,051	..	5,132	4,865	California	2,029	1,869	3,898	3,236	9,030	8,101
578	665	149	5	1,397	1,311	Idaho	401	6	407	375	1,804	1,686
172	394	198	..	764	758	Montana	88	76	164	129	928	887
286	416	185	..	887	835	Colorado	62	82	144	127	1,031	962
269	..	397	..	666	617	Nevada	108	31	139	108	805	725
228	490	96	37	851	640	Utah	145	139	284	219	1,135	859
169	..	221	..	390	456	Arizona	33	9	42	5	432	461
51	233	45	1	330	292	Wyoming	39	12	51	40	381	332
29	76	1	..	106	105	New Mexico	1	21	22	24	128	129
11,834	2,274	13,070	43	27,221	26,152		6,865	3,328	10,193	8,878	37,414	35,030
						SOUTHERN STATES						
No. 1	No. 2	No. 3	No. 4	1952	1951	5	No. 5	No. 6	1952	1951	1952	1951
945	4,082	1	18	5,046	4,979	Virginia	157	509	666	664	5,712	5,643
389	2,104	412	..	2,905	2,397	North Carolina	52	51	103	76	3,008	2,473
163	1,246	3	..	1,412	1,350	Texas	1,064	344	1,408	1,438	2,820	2,788
108	990	94	..	1,192	1,134	Florida	160	379	539	423	1,731	1,557
202	664	87	..	953	898	Georgia	169	293	462	442	1,415	1,340
123	567	8	..	698	693	Tennessee	39	172	211	232	909	925
91	705	47	..	843	817	South Carolina	48	54	102	74	945	891
213	590	20	17	840	749	Kentucky	31	87	118	121	958	870
125	391	..	..	516	495	Alabama	55	56	111	118	627	613
92	436	46	..	574	547	Louisiana	242	412	654	697	1,228	1,244
7	299	..	..	306	301	West Virginia	43	25	68	79	374	380
27	258	21	..	306	266	Oklahoma	90	61	151	158	457	424
24	195	1	2	222	212	Arkansas	62	132	194	215	416	427
13	175	2	15	205	185	Mississippi	3	..	3	1	208	186
2,522	12,702	742	52	16,018	15,023		2,215	2,575	4,790	4,738	20,808	19,761
No. 1	No. 2	No. 3	No. 4	1952	1951	TOTAL UNITED STATES	No. 5	No. 6	1952	1951	1952	1951
40,487	196,255	23,491	3,146	263,379	..	Total U.S. 1952	30,393	48,758	79,151	..	342,530	..
41,729	179,666	24,811	2,852	..	249,758	Total U.S. 1951	29,551	46,613	..	76,164	..	325,922

* Revision.

Radiant glass heating Panels

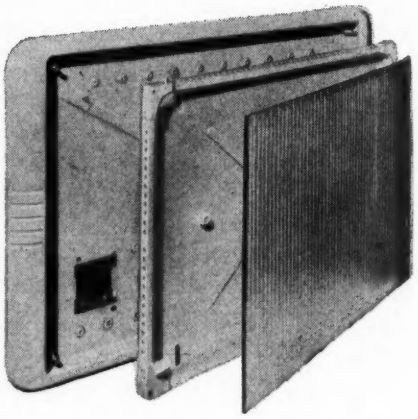
Bureau of Standards Tests prove Them effective for insulated basementless Homes

The following article reports the results of tests made recently by the National Bureau of Standards on electrically-heated radiant glass panels. These facts on a competitive fuel are felt to be of interest to oilheating men because electric panels often are used for supplementary heating for detached locations, or perhaps an addition to a home. Sometimes a couple of them are used off-season before the oilburner is turned on.

EARLY THIS YEAR tests were conducted by Paul R. Achenbach of the National Bureau of Standards, sponsored by the Housing and Home Finance Agency. The results showed that electrically-heated radiant glass panels constitute a satisfactory method of warming a basementless house. But, even with full house insulation, electric heating, it was found, can be expected to cost more in most areas than heating with oil, coal or gas.

The tests were conducted in the NBS Test Bungalow, which for the purposes of the tests was treated as basementless. For some of the tests the bungalow was insulated with 3⅝" of rock wool laid on the upper side of the living quarters ceiling, 1" of rigid fiber board insulation nailed to the bottom of the floor joists and the windows were weatherstripped. With this amount of insulation the bungalow was considered "uninsulated." For the remainder of the tests the stud spaces of the walls of the bungalow were filled with expanded-mica insulation and plastic-filled wire mesh screen cloth was tacked over the outside of the window frames to stimulate storm windows. As such, the house was considered "insulated."

The typical radiant glass panel is mounted on a metal frame and backed by a reflective shield from which it is separated by a small air space. A metallic coating on the rear surface of the glass serves as the electric conductor and heating element. Output per panel is typically about 1,000 watts. Panels are designed for 115 or 230 volts AC and are made for mounting beneath windows, as baseboard units or as vertical units adjacent to window frames.



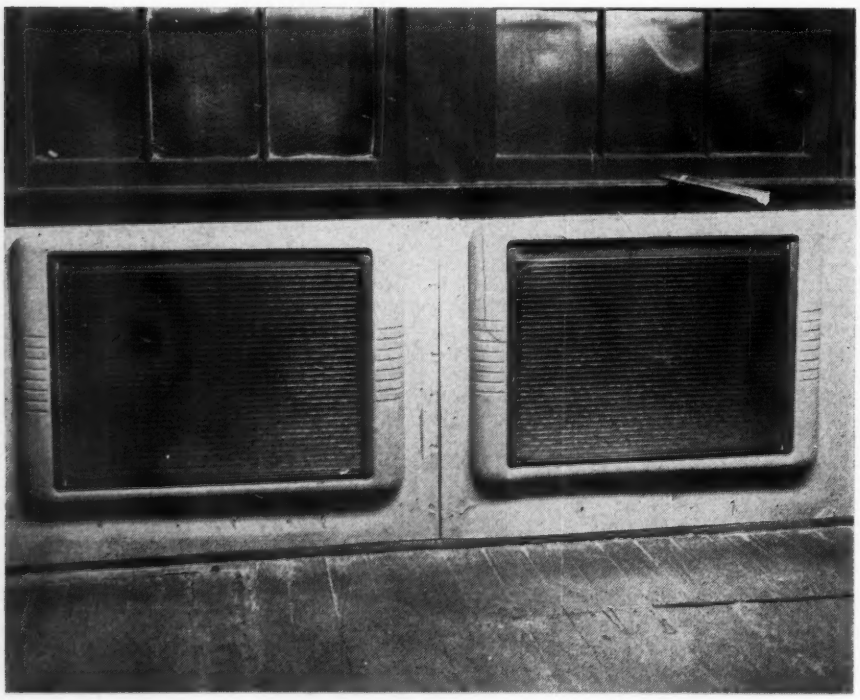
An exploded view *of a typical radiant glass heating panel shows its principal components: Frame, reflector and glass heating element.*

When the panel is heated above the room air temperature heated air passes upward over the face of the panel, through the space between the glass and the reflective shield and between the shield and the frame of the panel assembly. At the same time, radiant heat is emitted outward from the face of the panel. Circulation of air behind the glass keeps the assembly cool enough to allow it to be in contact with combustible materials.

Ten radiant glass heating panels were installed: two under the double window of the living room, one under the single window of the living room, one under each of the other windows in the bungalow. There were then three panels in the living room, two in the kitchen, two in the north bedroom, two in the south bedroom and one in the bathroom, all located just above the floor level. Each was connected to separate electrical circuits and room temperatures were controlled by individual thermostats.

Approximately 20 minutes were required after starting for the panels to attain steady power demand and approximately 30 minutes elapsed before a steady temperature was reached on the exposed glass surfaces. Temperatures at the centers of the glass plates

(*Please turn to page* 166)



In the tests *these two units were mounted together under the living room window. Installations in other rooms used single panels.*

Part VII: Oilburner Control Series

General Electric Controls

New G-E burner Controls designed to be easy to sell, to install, and to service

by
J. W. Schulz

THE name General Electric carries weight. General Electric's decision to become important in the field of oilburner controls is tremendously important news to the men of the oilheating industry.

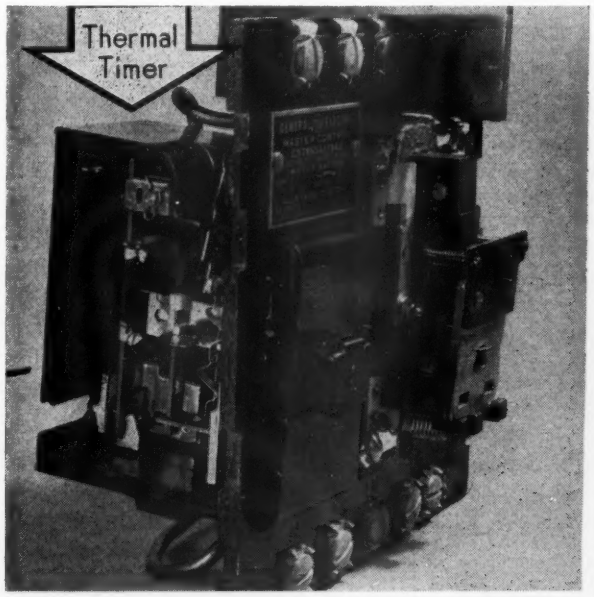
General Electric recently formed its Appliance Control Department for one purpose, which it spelled out clearly: to develop and manufacture complete controls for the appliance and home oilheating industries. Headquarters for this department were established at Morrison, Illinois. Here General Electric integrated engineering, research, and manufacturing facilities to produce complete controls, the company announced, and it emphasized "complete controls."

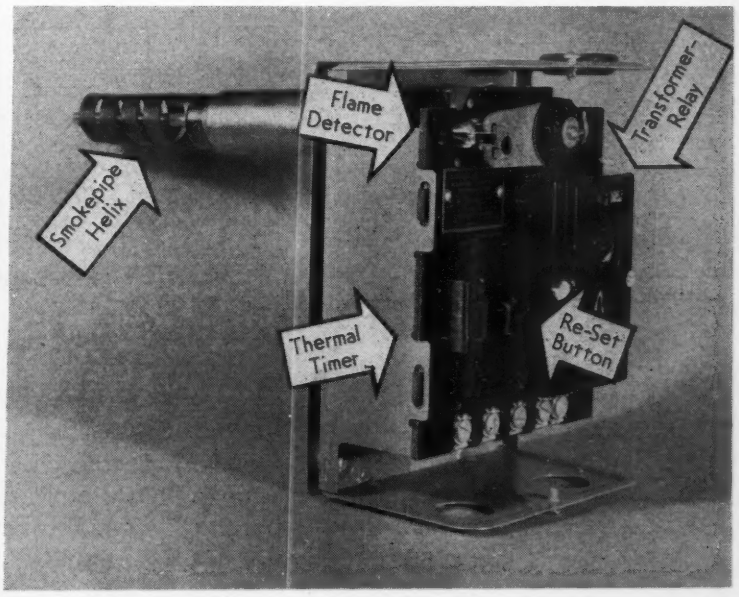
This company certainly spared no effort and expense in making certain to bring out a line of domestic oilburner controls which is unquestionably complete. The new line of G-E domestic oilburner controls includes room thermostats, limit controls for all types of heating plants, plain relays that permit low-voltage thermostats to start and stop 110-volt motors, and safety control panels. It is complete in including a day-night temperature control clock that gives automatic reduction of house temperatures at night.

The new line of G-E safety control panels (or master controls or primary controls) includes two types of panels: (1) a self-contained panel for smokepipe mounting, equipped with a smokepipe bimetal helix; (2) a panel for mounting on an oilburner, or inside or outside the jacket of a furnace or boiler—this panel has no bimetal flame-sensing element or the equivalent, and must be connected to the G-E flame detector, a separate control suitable for smokepipe location or location in the combustion space of a furnace or boiler. This flame detector is unique in several respects.

Its nichrome-and-quartz detector rod is described by G-E as practically indestructible—that's why it can be near the flame. Its speed of response to flame failure can be so great, with the control installed in a manner that employs this control's speed characteristics to greatest advantage, as to cause certain enthusiasts for this flame detector to ask the rhetorical question, "Why use electronic controls for domestic oilburners?"

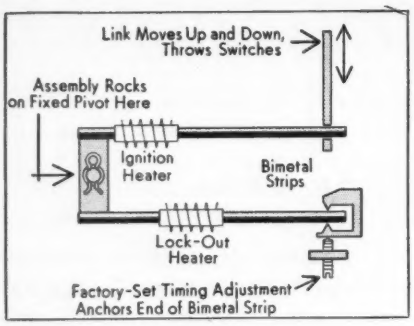
The two types of G-E control





Disassembled master control *(left) for use with flame detector. (1) undo the wires from terminals, take precautions to insure putting them back properly later, (2) remove cover of transformer-relay to inspect its contacts, (3) spread side supports outwards to remove panel, (4) slide cover off thermal timer. Press the link—see Diag. 1—both ways by hand to snap the three switches of the thermal timer. Don't be rough or abusive, for you don't want to bend parts or alter spring tension and ruin the timing!*

G-E safety control panel *(right) for stack mounting has bimetal smokepipe helix. Flame detector is easily disassembled and checked—see Diag. 3. Contacts of transformer-relay switches can be checked easily by removing molded cover that keeps switches clean; disregard the white cement on two screws that hold on cover—chip it off easily with screwdriver. With cover removed, you can close the relay switches by hand. Many servicemen press in oilburner-motor relays by hand as shortcut for locating electrical trouble that's keeping a burner from running. Spread its side supporters outwards and you can remove the panel from this stack control. Then slide the cover off the thermal timer to check its operation; G-E's service manual tells much about this.*


Link Moves Up and Down, Throws Switches
Assembly Rocks on Fixed Pivot Here
Ignition Heater
Bimetal Strips
Lock-Out Heater
Factory-Set Timing Adjustment Anchors End of Bimetal Strip

Diag. 1—*Pair of bimetal strips provide action for important thermal timer. Downward pressure on link corresponds to warming the lock-out heater; 3½ ounce downward pressure opens safety switch in Diag. 4. Then switch can be closed only by pressing safety re-set button. Upward pressure on link corresponds to warming the ignition heater, causes both ignition-heater contacts to snap open; release pressure and they close.*

panels are made in models for continuous ignition and constant ignition, giving a choice of four types of panels and a nicely rounded-out line of controls in this respect.

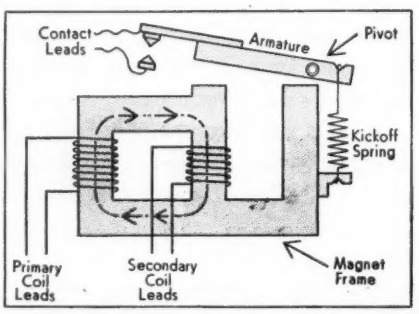
Having put untold thousands upon thousands of dollars into research, development, engineering, and tooling up for large-scale production of this entirely new, complete line of controls for domestic oilheating equipment, General Electric expects to become outstanding as a manufacturer of oilburner controls.

General Electric has this to say to the men in the oilheating industry, "You'll be seeing more and more of these G-E oilburner controls—and you will like working with them."

The formidable G-E organization behind these new burner controls aimed to make them easy to sell, easy to install, and easy to service.

The results of this great effort, which appear in the form of the controls themselves, now are being studied by men at every level in the oilheating industry. Top-level executives of million-dollar corporations are checking over G-E control design, construction, and performance with the objective of forming conclusions. They wonder, to what degree will G-E's projecting itself into the field of oilburner controls change oilheating history? In smallest oilburner dealer organizations and fueloil companies, the bosses themselves, the salesmen, the installation men, and the servicemen all are wondering to what degree the new G-E domestic oilburner controls will win the heart of the oilheating industry. Will few or many oilheating equipment dealers demand G-E controls when they order conversion burners, furnace-burner units, and boiler-burner units?

Much depends on servicemen's opinions of G-E controls. Good servicemen are scarce and expensive. High costs of servicing oilburner installations are the big gripe of thousands of oilburner dealers, including the smallest and the largest. The opinions of his service experts are important to a burner dealer for a dozen reasons. Therefore few oilburner dealers dare take lightly their servicemen-employees praise or condemnation of this



Diag. 2—*Transformer-relay. Secondary coil provides 25-volt, 0.25-ampere current for thermostat circuit and two heaters in thermal timer. Simplified drawing shows one set of relay contacts. Actually, snapping in relay by completing the secondary circuit closes (1) motor switch contacts, and (2) low-voltage hold-in contacts. See Diag. 4.*

or that make of oilburner, motor, nozzle, ignition transformer — or controls. G-E's chances of success in the field of oilburner controls depend greatly on the opinion which the typical serviceman forms regarding the new G-E controls.

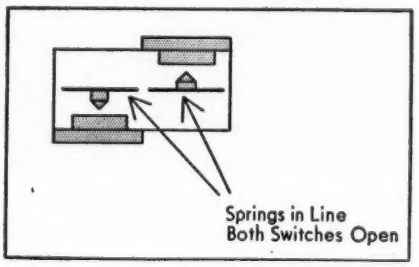
Oilburner servicemen and other oilheating experts have something to sink their teeth into in studying G-E controls. There's a new slant in these controls that invites studying them closely. Men expert at control design and construction see that G-E has approached oilburner control problems differently than they have been approached before. Decidedly different design and construction may lead oilburner experts to definite, emphatic conclusions about these controls. The sales literature and the all-important instructive, technical literature issued by G-E on its new oilburner controls are, at least in places, distinctively different from much of the literature which dyed-in-the-wool oilheating enthusiasts have been reading up to now. All-in-all, after you've studied the controls and the literature, you won't come out middle-of-the-road. There's too much distinctive about the entire set-up for you to do that!

The G-E CR7865-A101A2 master control for intermittent ignition is shown in an accompanying photograph, and its internal wiring appears in an accompanying diagram. This is the self-contained stack-mounted safety control panel which has the bimetal smokepipe helix.

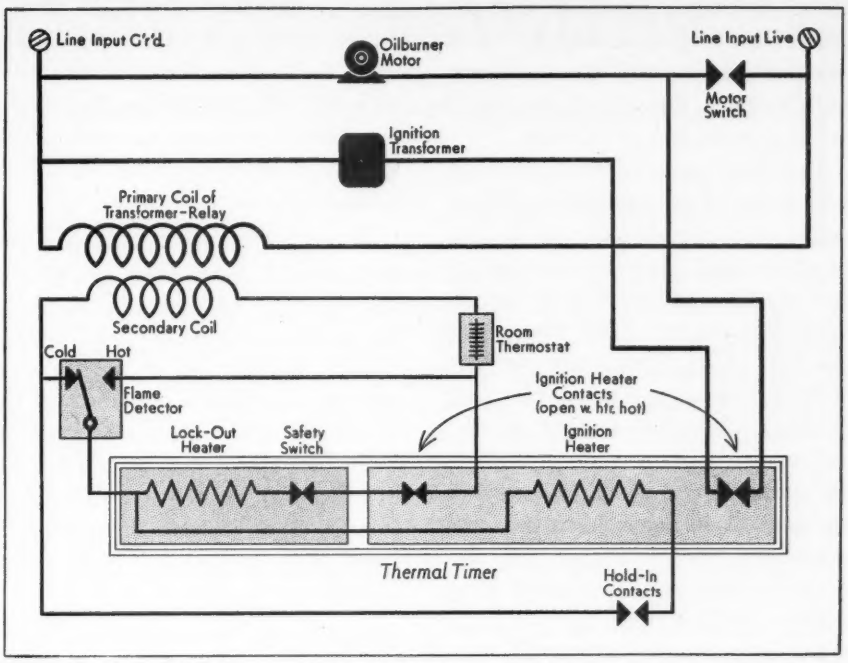
The three important parts of this control panel are:

1. The thermal timer, described by G-E as the heart of the control panel.
2. The transformer-relay. One assembly, which includes two fixed coils and an armature that throws two normally-open switches, serves both as a relay and a low-voltage transformer.
3. A smokepipe bimetal helix and the set of flame detector switches it opens and closes.

G-E instructions provide help in understanding and inspecting the thermal timer, though they say this timer is a unit requiring factory equipment for profitable servicing and therefore is supplied for replacement as a complete unit only. This important unit is shown in accompanying illustrations.



Diag. 3—*Flame detector contacts. Remove screw from center of knob, and flame detector of stack-mounted safety control panel can be disassembled and checked easily. Remove knob, fork, washers, and coil spring. Then realign contacts if necessary. Free, they line up with each other — both switches are open as in this diagram.*



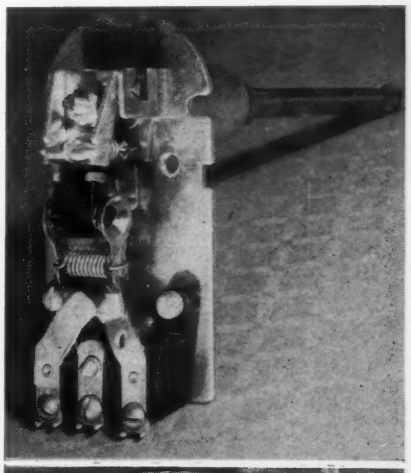
Diag. 4—*Internal wiring in G-E panels for intermittent ignition. With burner ready to start when thermostat circuit is closed, (1) "Cold" switch of flame detector is closed, (2) safety switch is closed, (3) ignition-heater contacts are closed, (4) low-voltage hold-in contacts are open, and motor switch contacts are open —both close when transformer-relay snaps in. During normal hot-smokepipe operation of burner, (1) "Hot" switch of flame detector is closed with the result that (2) ignition heater remains hot all the time burner runs normally, and (3) because ignition heater is hot, the ignition-heater contacts remain open. After burner stops, it cannot re-start until ignition heater cools and therefore its contacts snap closed—thus panel provides "scavening period" or "enforced 'off' period before burner can re-start." Two heaters and three sets of contacts boxed-in in drawing are all parts of thermal timber.*

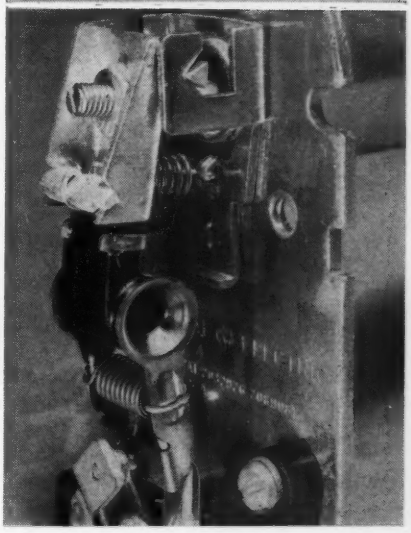
Diag. 1 brings out that the thermal unit consists of two bimetal strips, in effect fastened at their left-hand ends to a block that can rock on a pivot fixed to the chassis or enclosing box of the assembly. Heating either bimetal strip causes it to warp; the two strips are heated independently of each other by the two heaters in Diag. 1.

A flow of low-voltage current through the lock-out heater for 90 seconds causes the link to move downwards in Diag. 1, and causes the safety switch to snap open. Once open, the safety switch remains open, of course, until the re-set button of the control panel is pressed in an effort to start a burner which has "gone off on safety" or "stopped on safety lock-out." The lock-out heater and the safety switch are shown in the same box in Diag. 4 because they are related; if current flows through the lock-out heater for 90 seconds, the safety switch snaps open and remains open. Remember that when you study Diag. 4.

Diag. 1 shows the upper bimetal strip equipped with an ignition heater. A flow of current through this heater for about 60 seconds causes two sets of contacts to snap open, as the result of upwards movement of the switch link in Diag. 1. These two switches are shown boxed in with the ignition heater in Diag. 4. Opening of the right-hand switch turns off the ignition transformer; opening of the left-hand switch opens a circuit that must be closed for the burner to start, thus after the burner stops prevents burner re-starting until the ignition heater has cooled and snapped on the switch that provides intermittent ignition. Remember this in studying Diag. 4: A flow of low-voltage current through the ignition heater for about 60 seconds causes both of its switches (the two switches boxed in with the ignition heater in Diag. 4) to snap open. During normal, hot-smokepipe, burner operation the ignition heater remains hot and its two switches remain open.

Separate flame detector. *Of the many featured controls in the line of G-E controls for oilburners, this flame detector provides the most spectacular operation. Actually is recommended for installation in combustion chamber—naturally not in main flame or where fueloil will impinge on it—yet is said to respond instantly to 40° F. change in temperature of its nichrome-quartz detector tube. Shuts off burner as quickly as four seconds after flame fails.*





Working parts *of G-E flame detector. Parts that feel the heat from flame or smokepipe gases—detector may be installed in combustion space or in smokepipe —consist of an outer nichrome tube and an inner quartz rod. Tube has high rate of thermal expansion; rod thermal expansion is practically zero. Result is that adjusting screw (factory set) moves when temperature of detector tube changes slightly. Screw and its lock-nut are in upper left-hand corner of picture. Movement is magnified greatly so that contacts swing considerable distance. Servicemen like this flame detector for rugged construction, sensitivity, ease with which all parts can be seen and worked on, and "wipe action" of contacts provided to avoid the control's being disturbed by jarring or vibration or changes in room temperature.*

After the burner stops, the ignition heater cools; as a result of its cooling, its two switches snap closed. They must be closed for the burner to start.

Diag. 2 shows the transformer-relay part of this stack-mounted panel. Space, weight, and material were saved by making the transformer and relay a single unit. With current applied to the line terminals of the control panel, line voltage is applied to the primary coil of the transformer-relay. Diag. 4 shows this. Low-voltage current then is available from the secondary coil, when the burner is idle because the room thermostat circuit of the control panel is open during an ordinary oilburner "off" period. When the room thermostat circuit is closed and the usual load is placed on the secondary coil, it develops its own magnetic flux which bucks the magnetic flux of the primary coil. The magnetic flux of the primary coil overflows to the right, in Diag. 2, with the result that the armature is snapped down. Snapping down of the armature actually closes two switches: (1) the motor switch in the upper right-hand part of Diag. 4, which is a line-voltage switch, of course; and (2) the low-voltage, hold-in contacts shown low in Diag. 4, under the thermal timer. As Diag. 2 brings out, both the primary coil and the secondary coil of this transformer-relay are stationary, neither moves. Servicemen are bound to like that feature of the unit!

The silver contacts of the relay are well protected by a molded cover and should never require cleaning, G-E instructions say. They also say the action of the transformer-relay can be checked by removing the two screws that hold on the front cover. In view of this invitation to remove this cover, we find it difficult to understand why G-E sends out its controls and relays with white cement thickly coated over the screw heads that hold on the front covers. Certain servicemen take this as a warning not to remove these screws—and don't like it.

In our studies of these new GE controls, we went much further than to disregard any "Do Not Touch" connotation given by white cement on cover screws. To remove from its outer case the innards of a G-E CR7865-A105A2 control panel, for use with separate flame detector, we wedged the sides of the case open using screwdrivers in the manner of tire irons. This brought assorted gasps from assembled servicemen including, "Do you have to do that?", "Can you do that?", and "Must you do that?". Later we easily slid the cover off the case of the thermal timer, then went to work with a soldering iron undoing a wire that interfered with taking a microphotography picture of the innards of the thermal timer.

Diag. 3 emphasizes that the contacts of G-E flame detectors are not overlapping. That is, in Diag. 4 the burner starts with the "Cold" switch closed. An increase of the temperature of the bimetal helix cause the "Cold" switch to open—and at this point both the "Cold" switch and the "Hot" switch are open—an additional increase in the temperature of the bimetal helix causes the "Hot" switch to close.

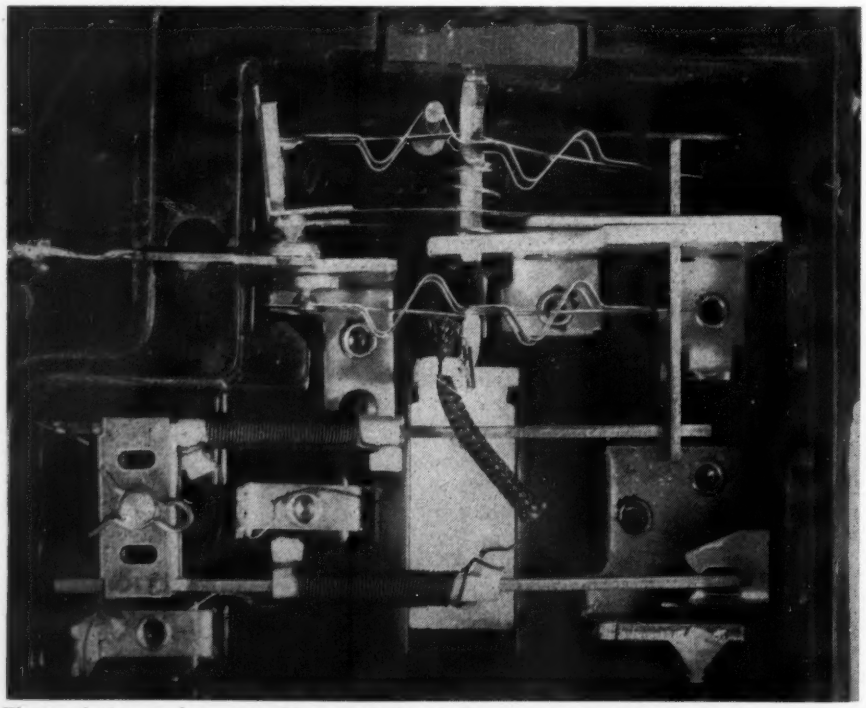
If after the burner starts the "Cold" switch of the flame detector opens for a slight increase in smokepipe temperature but the "Hot" switch does not close, the lock-out heater and ignition heater both will become warm and remain warm. Each heater's action will oppose the action of the other heater (study Diag. 1) and the burner will continue running with continuous ignition. Under these conditions, a slight drop in the stack temperature will cause the "Cold" switch to close. The result of this will be opening of the safety switch and stopping of the burner "on safety."

Diag. 4, which should be easily understood by control enthusiasts who have been following this series of control articles, shows all switches in the positions they are when the panel is ready for normal starting of the burner as the result of closing the room thermostat circuit.

Closing the thermostat circuit causes low-voltage current to flow from the secondary of the transformer through the "Cold" contacts of the flame detector, then on through the lock-out heater, safety switch, low-voltage contacts of the ignition heater, and of course up to the room thermostat and back to the secondary coil of the transformer relay.

You can see from Diag. 4 that if the ignition heater contacts are open—and these contacts snap open and closed simultaneously with a healthy "Click"—the burner will not start

(Please turn to page 183)



Thermal timer close-up. *Heart of the G-E master control, this timer deserves closest study, gives evidence of G-E's design and production motifs. Study this photograph in connection with Diag. 1. Here and in Diag. 1, timer is at right angles to its usual position. See safety re-set button at top center of photograph. Factory-set timing adjustment is at lower right-hand corner of photograph.*

Tight check Valves

How to reduce loss-of-prime Trouble; testing fuel Units

by

Herbert M. Cowan*

LOSS OF PRIME is the cause of many service calls, particularly on oilburner installations having fuel units located higher than the bottoms of basement fueloil storage tanks or buried tanks. Every good serviceman knows how to lick loss-of-prime trouble.

Good planning of new installations depends on including features that avoid loss-of-prime trouble.

You may be one of the oilburner experts who has no faith in check valves as cures for loss-of-prime. In that case, you point out you've tried ball-type check valves, poppet-type check valves, and swinging-flapper check valves. When brand-new, you say, usually these fall short of holding dead-tight. Certainly they don't close dead-tight after they've been in use a year, for specks of sediment or gum or dirt in them make them all leak like sieves. You ask what's the sense in using a suction-line check valve to prevent loss of prime, when (1) only dead-tight closing of the check valve prevents this trouble, and (2) check valves simply don't close dead-tight dependably.

I agree with you 100%—if you are talking about check valves that can't pass the "tongue test."

Though easy to make after a few tries, the tongue test is difficult to describe briefly. Here's one version of it. Plop the whole check valve into your mouth after identifying the output end. Suck for a second or two, then seal the outlet port of the check valve by applying your tongue to it. Now you can stick out your tongue with the check valve clinging to it—and if the valve passes the tongue test, it clings to your tongue not for a matter of seconds, but indefinitely, as long as you desire.

To pursue this further on a scientific basis, set up simple equipment to find out which check valves will hold a vacuum indefinitely. To the output side of the check valve to be tested, connect a pipe tee fitted with a vacuum gauge. Connect the tee also to a hand pump or motor-driven pump that can develop a vacuum. In the line from the tee to the pump, install a hand valve. Use the pump to put a 5" vacuum on the check valve, then close the hand valve to prevent air entering the check valve through the pump. Read the gage in eight hours or so, and you should obtain the same reading as you did when you closed the hand valve. The vacuum should not drop. It won't, if the check valve can pass the tongue test.

Don't test check valves using vacuum higher than 5". Check valves suitable for suction lines can hold low vacuums. Other check valves may close dead-tight against high vacuums, above 15" or 20", but are not suitable for fueloil lines, where low vacuums necessarily precede high vacuums. In an oil line, a check valve never will be subjected to a high vacuum if it cannot first close against a low vacuum. A check valve fails and leads to service calls, if it closes dead-tight only when subjected to high vacuum.

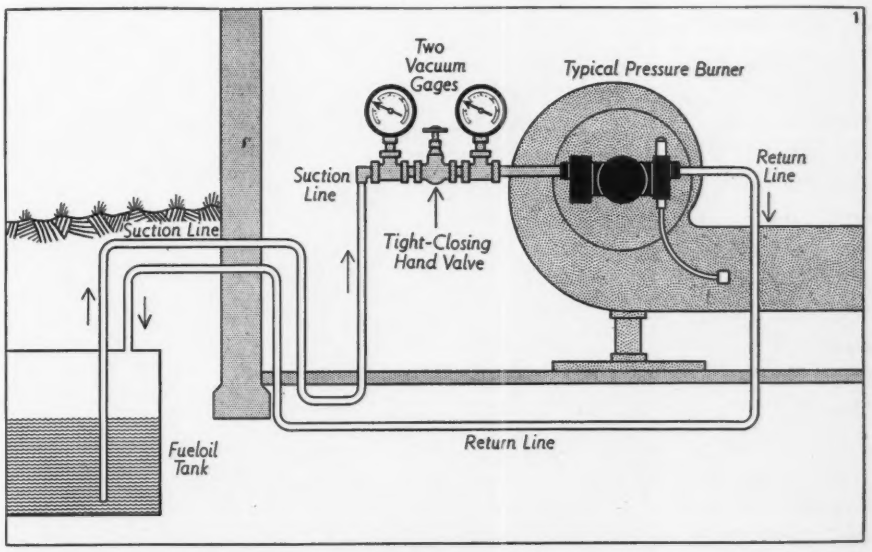
The tongue test is too severe for ordinary check valves having metal-to-metal seating surfaces. So is any other test equal to the tongue test—which tells definitely whether or not a check valve closes dead-tight at low vacuums. Ordinary check valves having metal-to-metal seating surfaces seldom close dead-tight when brand-new and carefully handled. Knocked about during shipment and installation, or affected by a bit of wear or a trace of dirt or gum, they don't close tight, and they don't prevent loss-of-prime trouble.

For your light fueloil jobs, use only check valves that can pass the tongue test, for only such valves close dead-tight against low vacuums, and hold tight indefinitely. As your tongue can tell, there are such check valves.

On the basis of the tongue test, then, you can use check valves to avoid loss-of-prime trouble on your burner installations.

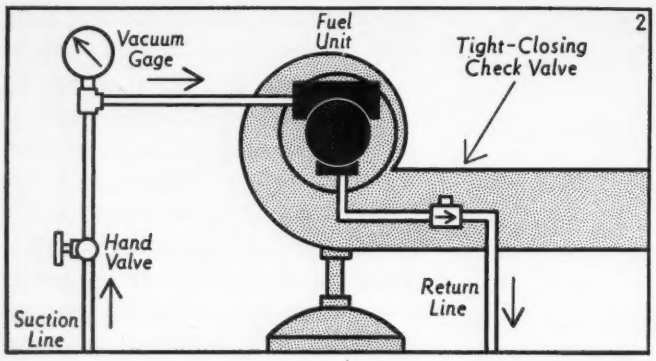
Diag. 1 shows a method for testing for suction-line leaks. The oil in the tank is lower than the burner. In suction-line tee's at each side of a hand valve, you install the two vacuum gages.

Start the burner and read the two gages. They should read the same.

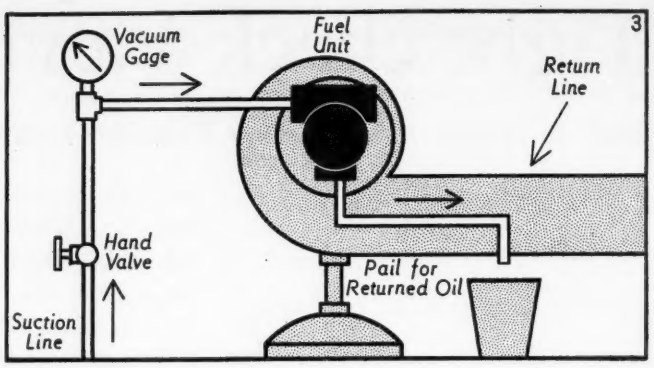


Diag. 1—*Schematic drawing of outside tank installation. Even with fueloil tank full, level of oil in tank is below level of fuel unit. Therefore with burner idle, as well as with burner running, vacuum gages should report vacuums in suction line close to burner. Text gives instructions for locating check valves on installations of this type. On actual installations, suction and return lines extend under basement floors for considerable distances.*

*President, Hold-Tite Valve Mfg. Co.



Diag. 2—*Vacuum test detects leaks in fuel unit. Closing suction-line hand valve with burner running causes vacuum gage to read at least 20" or 25". Tight-closing check valve is used here to prevent oil from entering fuel unit through return line. For safety, many burner dealers use check valves, not hand valves, in return lines . . . prevents damage caused by inadvertent closing of a return-line hand valve. A check valve in a return line gives the additional advantage of helping a fuel unit hold its prime during "off" periods.*



Diag. 3—*Method for starting a "lift job" without a return line. On a lift job, fueloil in tank is lower than the fuel unit on the oilburner. After losing its prime, the pump must lift oil before the burner can be re-started. Oilburners mounted high on forced-air furnaces now are causing many inside, tank installations to be lift jobs. Such jobs should have return lines. Accurate vacuum gages, or better yet U-tube manometers loaded with mercury, should be used for the types of tests described in this article. Oil-line hand valves must close dead-tight for proper testing.*

Open the firing door to play safe against the flame's stuttering or puffing, then close the hand valve. Now the right-hand gage reports the maximum suction power of the fuel unit's pump. With or without a return line, a good pump develops at least 20" to 25".

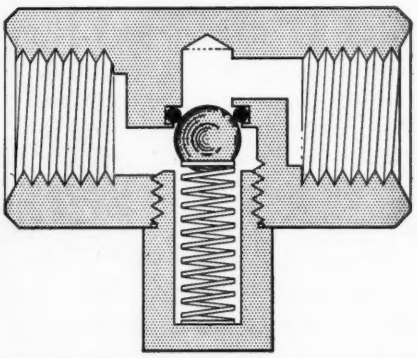
You noticed the left-hand gage reading before you closed the hand valve. Notice it again immediately after closing the hand valve. Because the oil flow through the suction line has stopped, the reading drops a bit when you close the valve. If with the valve closed this gage reading drops to zero—on this installation which involves lift of oil from the tank to the fuel unit—your testing has detected a suction line leak. Make certain, however, the leak is not in hand valve ("tight - closing" in the drawing) or the packing of the valve stem.

Suppose the left-hand vacuum gage in Diag. 1 reads 5" after you close the hand valve and stop the burner. With no suction-line leaks, this gage continues to read 5"—its reading does not drop to zero.

To prove a suction-line leak is outside the building, install a hand valve and two test tee's where the suction line enters the basement through the foundation wall. After you close the hand valve with the burner running, if the suction line outside the building is tight the gage will continue to report a vacuum. The higher the vacuum gage is above the level of fuel-oil in the storage tank, the higher the reading will be.

Diag. 2 shows how to give a fuel

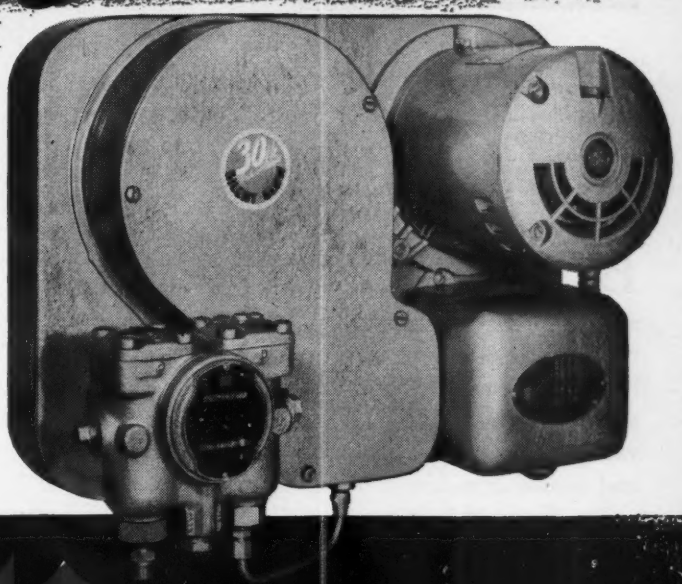
(*Please turn to page* 182)



Design of valve *in the valve-on-tongue photograph. Construction of the Hold-Tite check valve. The seat ring, solid black in drawing, is according to manufacturer of this valve responsible for tight-closing and self-cleaning characteristics of the check valve.*

Hippopotamus yawning? *No . . . this simply is a close-up photograph that proves the tongue test works. Tip for photography enthusiasts: Photo was taken by a Linhof Super Technika #23 camera, three-coupled-lens type, fitted with Tele-Xenar f5.5 180-mm lens for this zoo picture; daylight lighting supplemented by electronic Heiland Strobonar V.*

People want SILENT GLOW Coronation



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Dealers and distributors have been quick to realize that the Coronation is not just a new oil burner, but THE new oil burner for 1953. This sales-minded product, new in look, new in design, and new in operating efficiency, is a "natural" for sales-minded people in the industry everywhere. It's what they have been looking for. Extremely quiet operation, efficient firing, flexibility, lack of vibration, and a modern, streamlined, compact design that makes most of today's burners look "outmoded" . . . these are the things that make sales. Look at the way this new burner design blends into the Hi-boy furnace shown below—and look further into the facts of how this burner can be custom fitted to the exact needs of each conversion installation; how its "dynamic silencing" blends vibration out and how it affords top efficiency and economy in operation and servicing.

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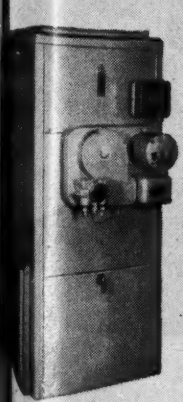
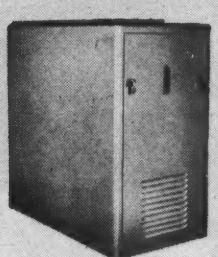
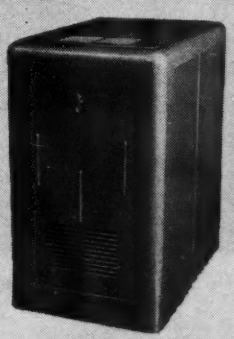


-BOY FURNACE



LO-BOY FURNACE



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by
Lansing Horst

BACK IN 1938 Nat Singer, one of two brothers who are partners in a large furniture business, was having trouble with his light oilburners that had been installed for a number of years. They were getting to the point where they were just about worn out and needed considerable attention.

The Singer & Sons furniture plant, occupying a ten story building on East 19th Street, was founded by Nat Singer's father, Mendel, over 70 years ago. It is now run by Nat and his brother Hayward, who in turn have brought their sons into the business to continue the furniture dynasty.

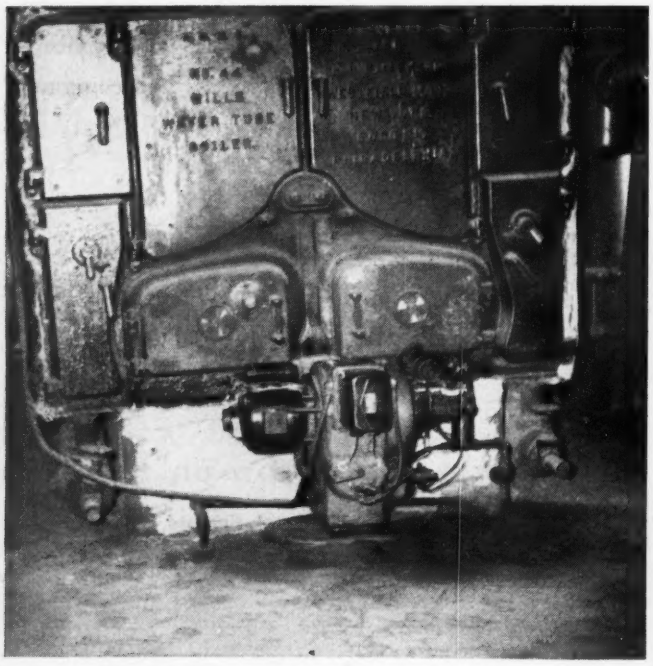
But to get back to the burner story, the fact that the burners installed were giving trouble set Nat Singer to thinking. The heating plant was consuming about 33 to 35,000 gallons of No. 2 fueloil per year and the price per gallon about that time was close to 6 cents. This ran into considerable expense for heating only, as the boiler plant was not equipped then or now for faucet hot water.

About the time all this thinking was going on, Frank Wymbs, who had just gotten the franchise for Cleaver-Brooks Hev-E-Oil Burner, happened to hear that Singer & Sons were considering the installation of new oilburners. With his well known drive and enthusiasm Wymbs descended on Singer and went to work. Wymbs was especially interested in getting one or more of his No. 5 oilburners in a loft type building in the city such as the Singers' owned.

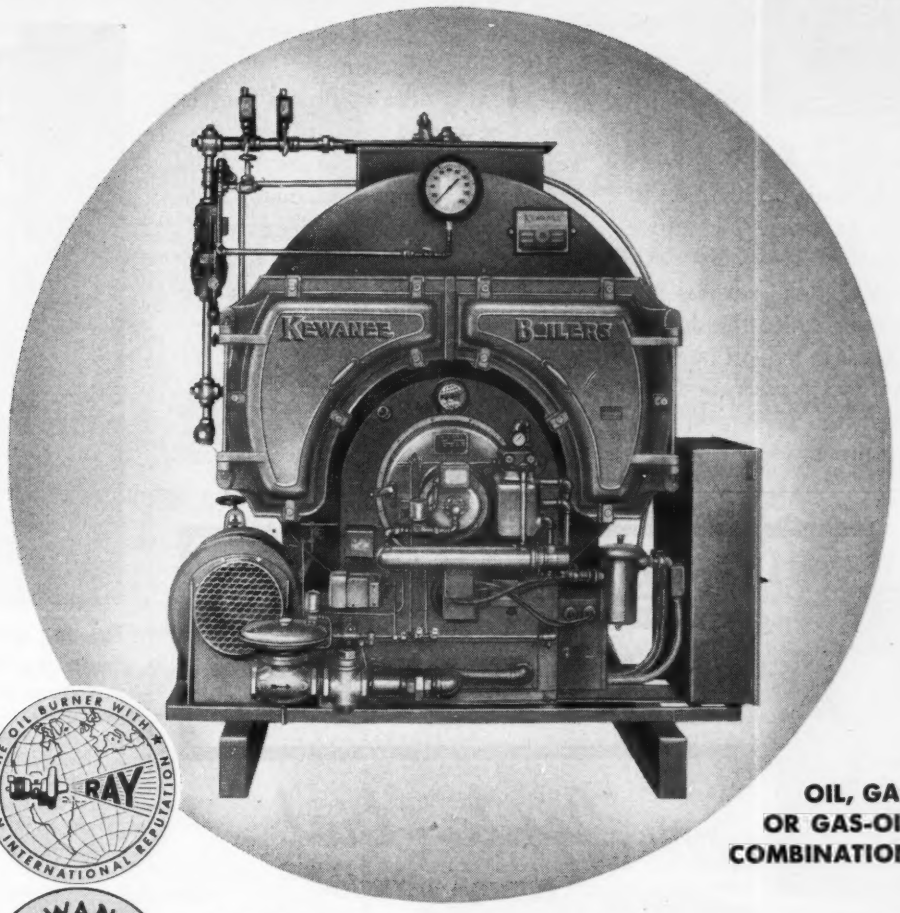
The heating plant, coupled to a two pipe steam system without vacuum pumps, consisted of two H. B. Smith No. 44 Mills Boilers, rated in excess of 6,500 feet of radiation and the "L" shaped building required about 10,000 square feet of radiation for heating purposes. Heat was required from 5:30 in the morning till about 6 P.M., with 60° F. being the night and weekend shutdown setting. A buried 3,000 gallon tank provided the fueloil storage. The original M-H controls are still being used and a T105 Chronotherm still provides the night setback and weekend shutoff.

The sales tack used by Wymbs to push the sale was, of course, the savings that could be achieved by using number 5 oil which at that time sold for less than 5¢ per gallon. Singer was intrigued and impressed by the argu-

Two *H. B. Smith 44 Mills water tube boilers side by side supply steam through a two-pipe system to over 10,000 feet of standing radiation plus 5 unit heaters. Originally the two boilers were equipped with light oilburners that wore out from many years of use. They were replaced by Cleaver-Brooks burners using No. 5 fueloil. This photo shows one of the two identical installations, each using a model AL4 burner with a maximum capacity of 15 gallons. A 3,000 gallon buried tank supplies the oil storage. The original M-H controls are still on the boilers and a T105 Chronotherm provides for night setback and weekend shutoff.*



A closeup *of one of the two burners that have been in operation for nearly 15 years. These burners operate considerably below their 15 gph capacity, but have ample reserve should additional radiation be needed.*



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The Kewanee-Ray Boiler-Burner Unit is *complete.* Boiler, burner, all automatic controls and accessories as specified. No special foundation is required. All refractories are integrally mounted at the factory. And a built-in forced-draft fan eliminates need for high stacks.

For High or Low Pressure Steam or Hot Water Heating. High pressure units, for 1350 to 15,800 lbs. of steam per hour developing 39 to 456 horsepower at 125 and 150 psi. Low pressure units for 15 lb. steam or 30 lb. water rated at 1,313,000 to 15,300,000 btu.

The complete boiler is shipped from Kewanee, the burner including windbox and control panel from Ray...so each shipment can be timed to arrive when you want it. The boiler should be on the job site before the new plant walls are up. (Exposure to weather does no harm). The shipment of the burner can be delayed until the new building is enclosed. Arrival of unit in two separate shipments is another important advantage when Kewanee-Ray is specified.

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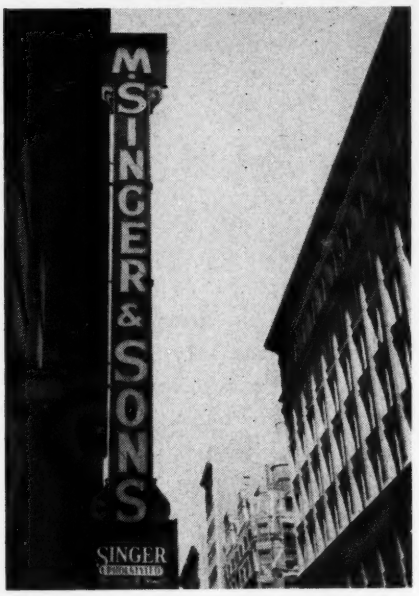
ment and gave it a good thinking over. Finally when he made up his mind to put in the No. 5 oilburners he drove a hard bargain with Wymbs. Although the profit in the job was not too much, Wymbs closed the deal to get an inside track in the loft building setup in downtown New York City. He figured that the savings in fuel costs would make a wonderful sales promotion story and events were to vindicate his judgment.

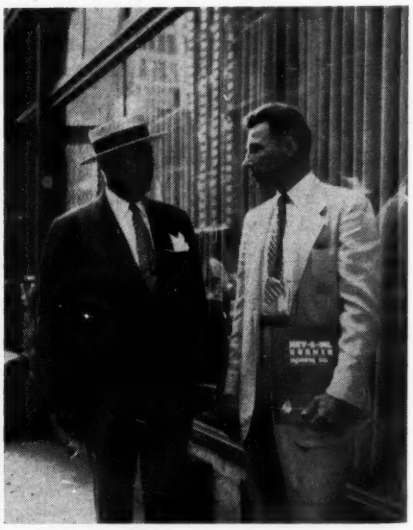
Two AL4, Cleaver-Brooks burners with a maximum capacity of 15 gallons per hour each, were installed and later Singer put in two vacuum pumps, (which operate part of the time), to get more even and rapid heat distribution. Five steam unit heaters also were installed to increase the output and these were additional to the standing radiation load.

At the end of the first year the gallons of No. 5 oil consumed as compared with No. 2 oil dropped from the 33 to 35,000 figure to about 30,000 and has about remained at that total throughout the almost 15 years of operation.

Nat Singer did some figuring and



The ten story *L-shaped loft building heated by the equipment discussed in this story is spanned from street level to roof by this sign that is visible the length of 19th street facing East and West. Two buildings across the street were sold on new burners as a result of the performance of the equipment in the Singer plant.*



Bill Burda *(left) and Tom Walzak have a chat outside the building. Walzak is sales manager of Hev-E-Oil Burner Distributors, who have the Cleaver-Brooks distributorship for the Eastern United States. Burda is sales manager for Stuyvesant Oil Burner. Hev-E-Oil Burner dealer. Stuyvesant also sells 30,000 gallons of fueloil per year to Singer & Sons.*

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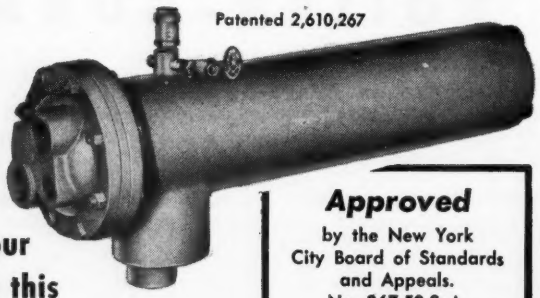

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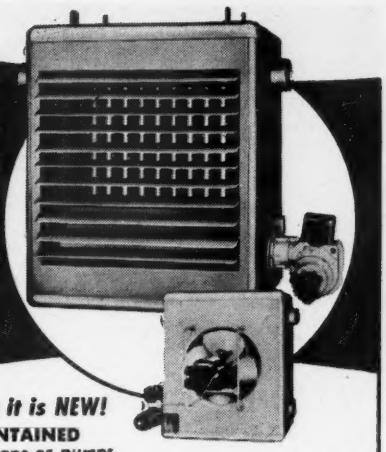

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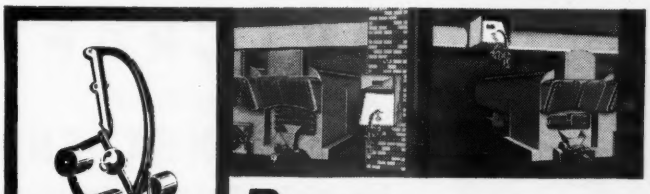

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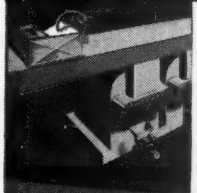

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1860 BROADWAY NEW YORK 23, N.Y.

INDUCED DRAFT SYSTEMS *need* SELECTED STARTING DRAFT!

A Draft Inducer is designed to provide a constant draft supply for maximum stack requirements. Without proper controls, it delivers maximum draft at all times. But under some conditions, this maximum draft needs correction—in particular during initial light off, whether on low-fire start, "high-low" burners or modulating burners, where excessive draft often causes starting failure or re-cycling.

CLEVELAND DAMPER CONTROL

provides the 4 CONTROL FEATURES essential to safe efficient operation of INDUCED DRAFT SYSTEMS

1. **STARTING DRAFT SELECTOR**—providing pre-determined optimum draft for smooth, safe, ignition. When ignition is completed, damper control goes to full, automatic draft regulation.
2. **AUTOMATIC DRAFT MODULATION**—maintaining ideal draft for proper combustion under varying firing rates and stack conditions.
3. **AUTOMATIC SEQUENCE OPERATION**—providing proper draft for all phases of firing cycle, with proper shut-off of draft during "off" periods.
4. **LOW DRAFT CUT-OFF**—providing the safety of an integral minimum draft switch that shuts down firing at unsafe low draft limits. Time-delay feature prevents nuisance shut-downs due to momentary puffs.

Only CLEVELAND DAMPER CONTROL can give ALL 4!

Write for complete information.

The CFE line includes damper controls, steam controls, electronic smoke detector control units, draft, air pressure and flue temperature gages.

COMBUSTION INSTRUMENTS & CONTROLS — CLEVELAND FUEL EQUIPMENT CO. CLEVELAND OHIO — FOR EFFICIENCY AND ECONOMY

CLEVELAND FUEL EQUIPMENT COMPANY

1111 Brookpark Road, Cleveland, Ohio

• SINCE, 1926 • in the application, design and mfg. of pumps — separators — hydraulic accessories

KRAISSL

PUMPS and SEPARATORS for oil burner service

CLASS 50 LIGHT OIL PUMPS

Direct Drive for #1 to #5 oils inclusive
Ask for bulletin A-1330

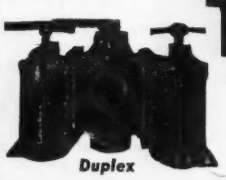
Reduction Drive for heavy oil
Ask for Bulletin No. A-1193

CLASS 60 HEAVY OIL PUMPS

CLASS 72 STRAINERS —FILTERS

Single and Duplex
Standard and High Pressure Baskets instantly and easily changed — eliminates filter replacement costs entirely.
Ask for Bulletin No. A-1214

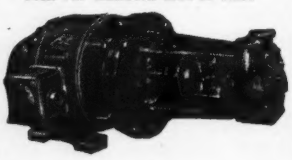
Single


Duplex

for bulk station service

CLASS 60M MOTORED PUMPS

Direct Drive
For exclusive use with Light oils and Solvents
Ask for Bulletin No. A-1267



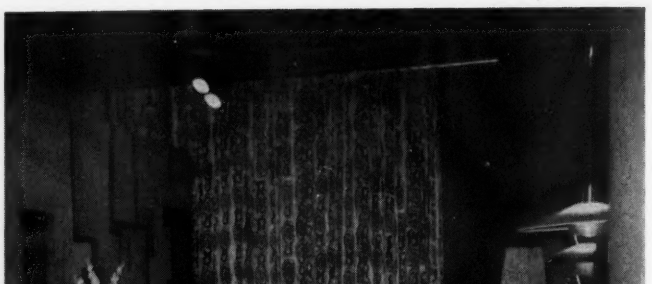
CLASS 80 TRI-ROL PUMPS

Interchangeable Service
Both light and heavy oils—tank truck and bulk station
Ask for Bulletin No. A-1366

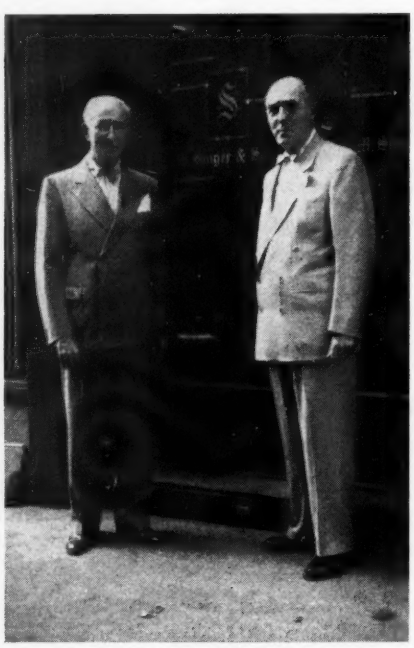
KRAISSL KRAISSL CO
295 WILLIAMS AVE., HACKENSACK, N. J.

estimated that he saved about $900 in fuel costs during that first year. This was due to the price differential between No. 2 and No. 5 fuel-oils as well as an annual average drop of about 3,500 gallons per year in consumption. By the time the new burners had gone into the third year of operation they had paid for themselves. One of the other developments was the deep friendship that grew up between Nat Singer and Frank Wymbs.

A steady stream of prospects have visited Singer's boiler plant to view this early installation and over 50 direct sales have been made because of its performance. In fact two loft buildings on the other side of the street in the same block have made the same



Dozens *of display rooms with furniture settings are supplied with heat from hidden radiation. These rooms are beautifully colored and decorated and are visited by prospective purchasers and interior decorators all through the day. Temperatures must be closely controlled and even heat distribution is essential.*



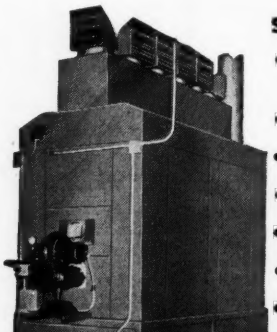
Nat *(left) and Hayward Singer have been in the furniture manufacturing and sales business all their lives. Their business building, 10 stories high in the heart of Manhattan has been heated by oil for nearly two generations. The two brothers are really enthusiastic about the savings they have achieved by using heavy oil.*

ARTCRAFT

Direct Fired

SPACE HEATERS

THE MOST MODERN, ECONOMICAL AND FLEXIBLE METHOD OF HEATING LARGE AREAS



SERIES "A" FOR
- INDUSTRIAL BUILDINGS
- BARRACKS
- REPAIR SHOPS
- HANGARS
- WAREHOUSES
- SCHOOLS
- RECREATION HALLS, CHURCHES, ETC.

FIRED WITH GAS OR OIL

Capacities: 200,000-2,000,000 B.T.U.
(Also Suspended Furnaces, 75,000-750,000 B.T.U.)

Manufactured by
Chicago Steel Furnace Co.
9326 S. ANTHONY AVENUE
CHICAGO 17, ILL.

type of installation.

Based on Singer Company's figures of an average $900 per year saving over the 14 year period, the total economy to date exceeds $11,000.

Only one interruption in the service of the burners occurred during the past decade. This was during the war when the furniture company couldn't get oil and went back to coal. This experience with solid fuel lasted exactly one month. One of the four tenants of the building was engaged in important signal corps work for the armed forces that involved the manufacture of communications equipment. The work was so secret that the Singers never knew it. As the fuel change-over occurred the tenant told the Singers of the nature of the work being done. The owners of the building then applied for a priority which was rightfully due them under the circumstances and received it. The burners went right back in and the coal storage problem was happily eliminated.

❖

Preferred has Bulletin on extended heavy burner Line

PREFERRED UTILITIES MFG. CORP., New York 23, has just published a new illustrated bulletin covering the extended line of Preferred Model B and BR, belt-driven, horizontal, rotary-type, heavy oilburners which now ranges from 12 to 175 gallon capacity burners.

This eight-page booklet, No. 175-G, describes in detail the design and construction features of both the Model B, oil, and the Model BR, oil-gas, burners. Detailed descriptions are included of the dual-pump reservoir, fuel regulator, high-speed belt-drive, precision air-oil control, surefire ignition, fuel feed to atomizer, and extra long nozzle. Complete specifications, computed at 70% thermal efficiency, are given also for both types of burners.

❖

A. T. Bahel, formerly account executive with R. E. Lovekin Advertising Agency, Philadelphia, has been appointed advertising manager, L. J. Wing Mfg. Co., Linden, N. J.

for better business . . .

let's talk

BETTER EQUIPMENT!

and better equipment means —

QUICK, SIMPLE INSTALLATION — designed for heavy duty and ruggedly constructed, Preferred's Heavy-Oil Burner is delivered to you completely assembled, internally wired and pressure tested, ready for service line hook-up and operation, thereby saving installation time and expense. Simple control settings make possible firing adjustments quickly. No extra fittings, fussing, or fixing when you install Preferred.

— Preferred's extra long air nozzle makes installation under deep boiler water legs and combustion chamber arches not only easy but also allows self-supporting, *thicker* front walls in combustion chambers. As a result, your customers get longer refractory life, better front insulation and *you* get better-satisfied customers with less service calls.

Only Preferred can give you *all* these features to make *your selling easier* and *your profits surer* —

"Voluvalve" Fuel Regulator; High Speed Atomization; Precision Air-Oil Control; Dual-Pump Reservoir; Sure-Fire Ignition and it's *Completely Wired Internally* and *Special Long Nozzle.*

FOR COMPLETE DETAILS WRITE FOR BULLETIN 175-E.

PREFERRED UTILITIES MFG. CORP.

1860 BROADWAY · NEW YORK 23, N.Y.

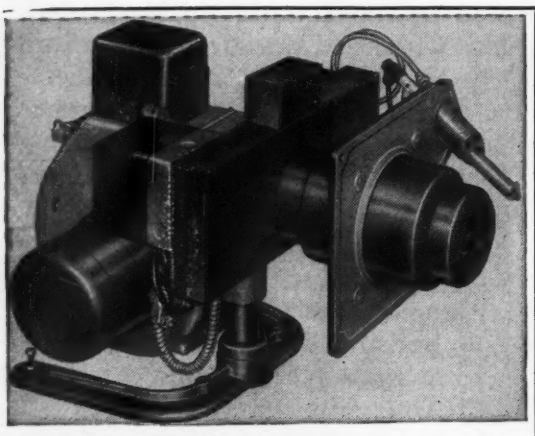
021

COMMERCIAL & INDUSTRIAL oilburning

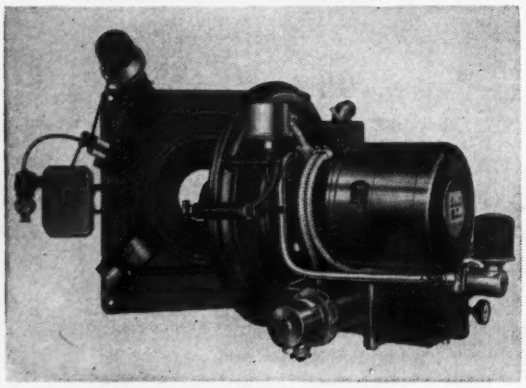
Central station Heating in Chicago shopping Area

EVERGREEN PLAZA, the first giant shopping area in Chicago to be built with a central station heating system has 53 store units with manually or automatically operated individual Honeywell heat distributor controls. These include electric, pneumatic and electronic devices.

Four of the largest commercial steel boilers made by National Radiator are now in service at the project. Low pressure steam is supplied by these



BANKHEAT DUAL-FUEL, Pressure Type, 5 to 54 H.P.



MODEL 53 METERING PUMP DUAL-FUEL BURNER
25 to 400 H.P.

The new way to bring heating costs down

INSTALL

JOHNSON *Dual-Fuel* BURNERS

THAT OPERATE AUTOMATICALLY ON EITHER *Oil* OR *Gas!*

In regions where low-cost gas is available part of the time but not available constantly, Johnson Dual-Fuel Burners are an ideal installation. They enable the user to change from one fuel to the other whenever it is advantageous. If gas is available and cheaper . . . he can burn gas. When gas is *not* available, or when oil is cheaper . . . he can burn oil. And all in the same burner. Just a flip of the switch makes the changeover. (For a little extra cost, he may have an Automatic Changeover Switch which is controlled by outdoor temperature or by gas pressure.)

These burners are available in Domestic, Commercial and Industrial sizes and types. All are completely automatic and equipped with the finest electronic controls. They are engineered, tested and precision-built to give lasting service and satisfaction. See them at your nearest Johnson dealer, or write direct.

Johnson Oil Burners

S. T. JOHNSON CO.
940 Arlington Ave., Oakland 8, Calif.
Church Road, Bridgeport, Pennsylvania

year 'round profits with

SABANOL Treated Oil has more power because Sabanol imparts maximum burnability to even the cheapest grades of fuel oil.

Instant Acting
SABANOL
THE HOMOGENIZING FUEL OIL TREATMENT

Once a Sabanol User — Always a year 'round Sabanol user.

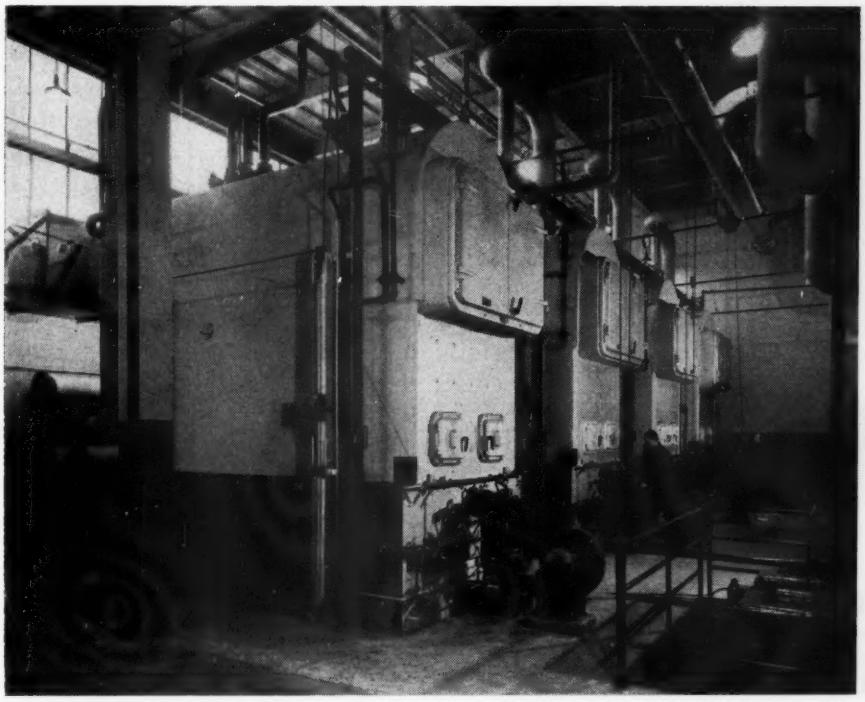
SABANOL masters sludge, keeps it in suspension, thoroughly homogenized, and is consumed.

SABANOL contains an exclusive soot retardant and rust inhibitor to insure a constantly clean system from tank to burner to stack. Non-toxic and guaranteed harmless to personnel and equipment.

SABANOL contains a water pick-up ingredient to reduce corrosion in tanks and lines.

WRITE TODAY *for Exclusive Franchise Details*

AMERICAN SAND-BANUM CO.
Established 1926
9 Rockefeller Plaza
New York 20, N.Y.



boilers to unit heaters, heating coils, radiant baseboards and convectors. The output is equivalent to 170,000 square feet of direct radiation and travels through 15 miles of piping in order to heat the $15,000,000 structure with 6,100,000 cubic feet of space.

There are four Indiana oilburners firing the National CA-7865 boilers. The oilburners are equipped with fully automatic controls. Electric modulating motors, regulating draft and oil flow and control panels from which low water cutoffs and high pressure cutoffs are operated, are mounted directly on the boilers.

Modulating Valves are used

No. 5 bunker oil after passing through preheaters enters modulating valves before reaching the 145 gallon per hour capacity burners. These modulating valves permit operation at low fire. When the solenoid valves open, the oil flows to the burners. Flame rods, heated by ignited oil, actuate the modulating pressure controls on the oil valves and draft air dampers by closing the relays. To prevent burners from starting on high fire, relays close the solenoid valves when ignition fails.

For convenience and efficiency gauges showing the fuel level in tanks and water on hand in the boiler reservoirs are mounted on the wall. Other gauges giving steam pressure readings in the distribution system (5 lbs. psi normal) and in the boilers (governors are set for release at 15 lbs. psi) are

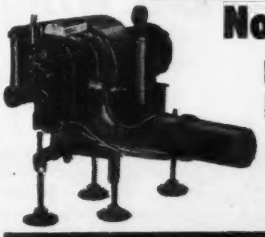
NOW OFF THE PRESS

"Commercial & Industrial Oilburning Book"

It contains a series of articles that have appeared in FUELOIL & OIL HEAT magazine, including twelve features by Kalman Steiner. This 80 page book 8½ x 11 is profusely illustrated with photographs, charts, and diagrams. Price only $2.00. We prepay mailing and postage. Please mail remittance with order.

FUELOIL & OIL HEAT
2 West 45th St. NEW YORK CITY

★ RAYFIELD ★
AUTOMATIC



No. 5 OIL BURNERS

REDUCE HEATING COSTS...
INCREASE YOUR PROFITS

Burn No. 5 heavy fuel oil. Self-contained, all electric. Self-lubricating. Many new exclusive features. Write for full details.

GOOD TERRITORIES OPEN

C. L. RAYFIELD CO.
2010-18 S. Halsted St., Chicago 8, Ill.

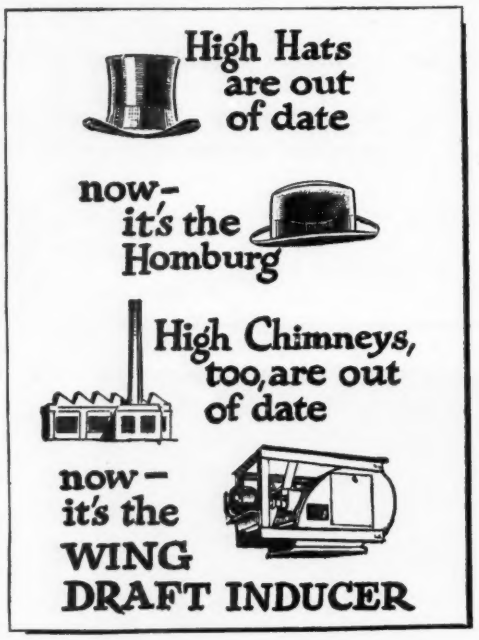
ADEQUATE DRAFT

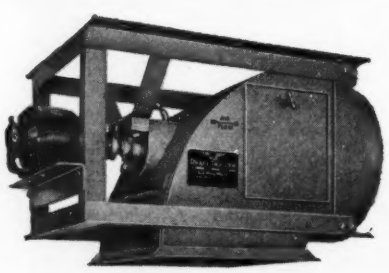
REGARDLESS OF WIND, WEATHER OR LOCATION—AND

WITHOUT TALL, UNSIGHTLY STACKS

BY THE USE OF

WING DRAFT INDUCERS





YOU GAIN THESE ADVANTAGES:

- **Exact Draft with Precise Control**
- **Substantial Savings in Maintenance**
- **Ease in Installation**

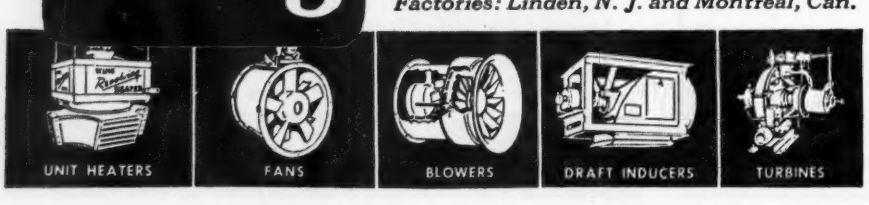
The advantages of mechanical draft over natural draft are tremendous. Draft produced by stack or chimney is seldom reliable, varying according to weather conditions. The motorized draft inducer makes its own draft regardless of weather conditions or variation in load. The necessity for tall, ugly, expensive stacks is eliminated, permitting the architect to design a more attractive building. Write for a copy of Bulletin I-52.

Wing

L. J. Wing Mfg. Co.

66 Vreeland Mills Rd.
Linden, N. J.

Factories: Linden, N. J. and Montreal, Can.



COMMERCIAL & INDUSTRIAL oilburning

also located near the boiler controls.

Two automatically controlled 15,000 gallon steel tanks provide storage for a 30 day supply of fuel. Located under the surface of a less heavily traveled side street, oil trucks can replenish the fuel in the tanks without any interference with shopping center traffic.

The boiler room located on a lower level adjacent to trucking districts is at a central point so that all parts of the system can be efficiently serviced. Each boiler is fastened atop four steel H beams imbedded in a concrete foundation, arranged so that the walls and refractory brick linings of the combustion chamber do not bear its weight. As some expansion is anticipated, additional room has been provided for a fifth boiler of similar size if its installation should be required. Heating requirements thus far have not made it necessary to operate more than two of the boilers at one time.

❖

Overhead Heaters N.Y. named east coast Shafconaire Outlet

OVERHEAD HEATERS NEW YORK, INC., New York 17, now are exclusive east coast distributors of Shafconaire oil-fired suspended furnaces, manufactured by Overhead Heaters, Inc., Detroit.

Miss Ruth I. Shafer is president and Mrs. Rachel R. Ormsby has been appointed merchandising manager of the New York firm.

John Dunn, formerly in charge of burner sales, Peabody Engineering Corp., New York, N. Y., has been appointed general sales manager by that company. Dunn's new duties will include full responsibility for all sales divisions in the western hemisphere and territorial representative companies. He started with Peabody in 1935, becoming chief draftsman, manager of service, manager of burner division sales and assistant general sales manager.

Readers' Problems

Q. Your recent article on the Boston Enterprise dealer says the No. 6 oil is heated to 160° F. on the excellent installation described. Much discussion of proper oil heating took place here as the result. How do these experts know 160° F. is just right? Why don't they set the Powers temperature regulator higher? Or lower?

L. O. F., Buffalo, N. Y.

A. A caption under a photograph on p. 120 reports CO_2 readings as high as 14.4% were obtained when the job first was tested, and spots tests now show 13.5% CO_2. Such readings prove that performance cannot be improved much by raising or lowering the temperature of the fueloil fed the atomizing cups.

To ascertain if changing the amount the oil is preheated leads to improved combustion, you've got to use a CO_2 tester and a smoke checking instrument. Without the help of these instruments, you can't tell if increasing or decreasing the oil temperature leads to better or worse combustion and efficiency.

Q. What are the advantages of high-pressure steam heating or boiler plants versus low-pressure plants to heat greenhouses needing total boiler horsepower of 400, oil-fired of course?

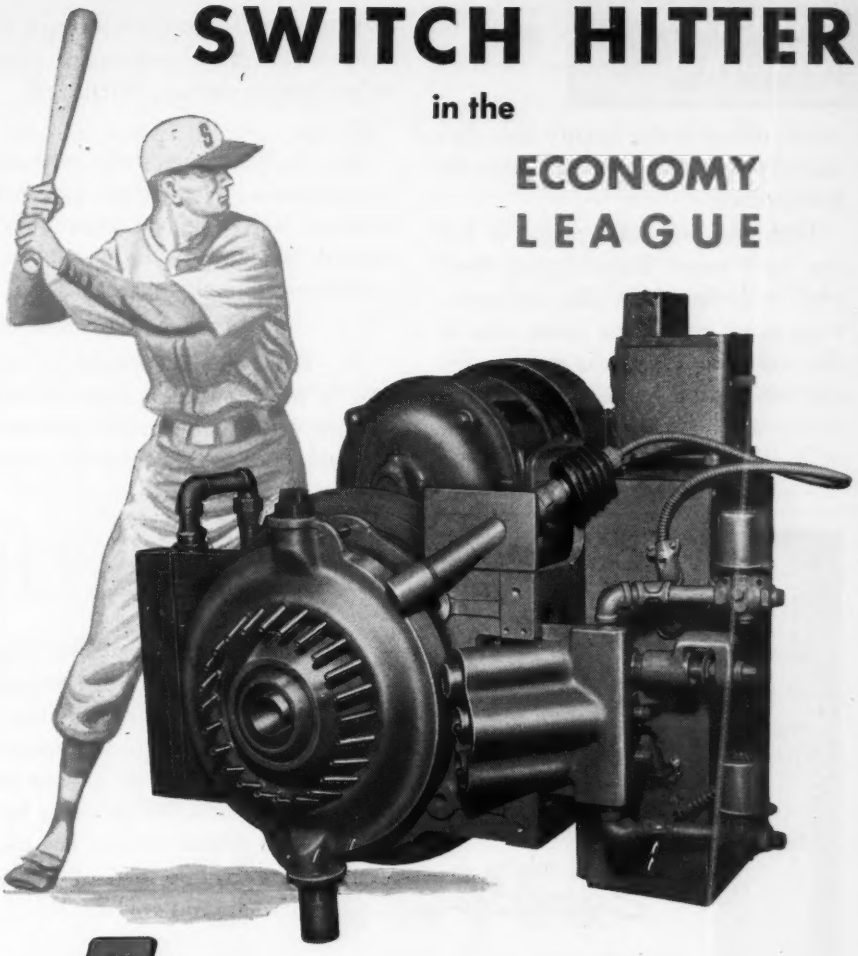
G. W. S., Jamaica, N. Y.

A. One of the most important advantages that can be gained by heating greenhouses using a high-pressure boiler plant lies in driving boiler-plant auxiliary equipment and electric generators or alternates by steam, thus making the greenhouse heating independent of the use of electricity supplied by outside sources. Failure of elec-

SWITCH HITTER

in the

ECONOMY LEAGUE



SUPERIOR

combination GAS/OIL burner

Just as the ambi-dextrous batter takes advantage of the pitching situation, Superior Combination Burners take advantage of the fuel price situation.

Burn ALL Grades of Gas or Oil

Highly efficient, burning any commercially available grade of gas or oil, Superior Combination Gas/Oil Burners switch from one fuel to the other quickly and simply without interruption of steam supply.

In many localities where natural gas is used extensively, worthwhile economies can be effected by switching from oil to gas firing to take advantage of the lower off-peak and surplus gas rates.

Superior Combination Gas/Oil Burners are equipped with intermittent gas-electric ignition for oil firing . . . *plus* a *constant* gas pilot which remains lighted during . . . *and between* . . . gas firing cycles.

Fully Automatic

Operation is fully automatic in sizes to 500 b.h.p. with dual ignition and hi-low or fully modulating control.

With more and more communities being served by natural gas lines, the demand for combination gas/oil burners increases daily. Dealers who handle Superior Combination Burners are in an ideal position to profit from this demand.

Don't Overlook This!

Valuable unassigned territories are still available. If you have the experience and the organization to successfully handle sales and installation, write for complete details.

for performance you can **BANK** *on*

SUPERIOR COMBUSTION INDUSTRIES INC.
TIMES TOWER, TIMES SQUARE, NEW YORK 36, N.Y.

SUPERIOR STEAM GENERATORS

trical current in the locality then does not cut off the all-imporeant heat of the greenhouses.

High-pressure steam plants of this size have many disadvantages, however, with the result that in bygone years many greenhouse plants were of the hot-water type, and today many are low-pressure-steam type. Generators or alternators driven by gasoline or diesel engines are used widely today to provide electrical current for oil-powered greenhouse boiler plants when outside electric current fails.

Q. A circulating pump operated continuously will be used for three burners, each firing a maximum of 60 gph. What should be the output of the circulating pump?

K. H. S., Chicago

A. Determine the maximum gph rate at which fueloil must come from the circulating pump under maximum-load conditions, and double it to ascertain the pump capacity needed. With certain piping hookups the pump capacity should be double the total maximum firing rate of all the burners. With other piping hookups that include pump-type oilburners, the pump capacity should be double the total rate at which all the oilburner pumps handle oil.

If the three burners on this installation have pumps that will draw oil from the output-line of the circulating pump, and if the return-line connections of the burners will be connected to a line that leads back to the oil storage tank, you may need a circulating pump that provides 720 gph.

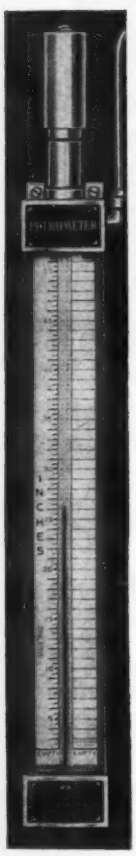
Q. If you were to install a steam boiler for a school building (3500 ft. radiation), would you recommend a steel boiler or a cast-iron tubular boiler? Why? This boiler is to be oilfired.

S. E. H., Berlin, N. H.

A. We would start by deciding upon the stack temperature. Fired hard enough to carry the maximum load, the stack temperature reading should be no higher than, say, 450°, 500°, 550°, or 600°. You decide. That's with the boiler brand-new and its flues spic-and-span, and with the burner providing excellent combustion — low reading from smoke-checking instrument and CO_2 at least 10% or 12%.

For excellent reasons, many heating engineers would install a steel boiler on such a job. For excellent reasons, many would install a cast-iron boiler. You should list all these reasons, consider them yourself, then decide which type boiler you believe is better for the particular installation. Open-minded now, you are in an admirable position, for after reaching a decision based on a thorough study of all the factors involved you can feel certain in your own mind that you are right in recommending the boiler you decide upon.

Q. In the March issue, p. 114, the first question under Readers' Problems concerns flame pulsation. O. H. S., Washington, D. C., says he switched to a bigger blower. I am quite sure he is referring to a larger fan, but I want



"Bring Your Liquid Level to Eye Level"

No need for cumbersome, time consuming stick measurement. Here's the convenient—and accurate—way to read tank contents. The PETROMETER gauge can be installed on tanks above or below the ground, and at any distance away—up to ¼ of a mile. Set it where you want it.

WITH

PETROMETER

Remote Reading TANK GAUGES

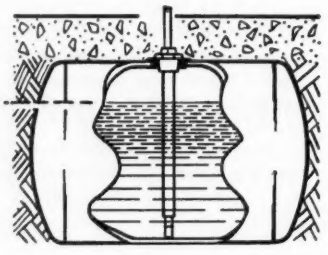
LOOK AT THESE ADDED FEATURES:

Large, easy-to-read vertical scale gives tank contents at a glance. The bright red liquid column on the scale just can't be missed. A red, transparent plastic strip warns when to reorder.

Frictionless operation. No troublesome moving parts to cause repeated failures. Operates on the sound principle of the U-tube. Simple, dependable, rugged.

AND INSTALLATION IS EASY—

The tank assembly for the gauge can be installed when the tank is empty or when containing liquid. It can also be installed separately to complete the tank work. The gauge can be connected any time later. *Just tighten one simple connection* and the job is complete.



FOR TANKS 20 INCHES TO 50 FEET DEEP.

WRITE TODAY FOR BULLETIN PD

2

LIQUIDEPTH INDICATORS, INC., 43-22 Tenth Street, Long Island City 1, N. Y.

to be sure. Please let me know?

G. R. W., St. Louis, Mo.

A. We are not certain that you are not pulling our leg philologically. You must know that in the question and answer the word "blower" indicates the motor-driven, air-moving part in a typical pressure burner. You may subtlety be indicating that you are determined to use the term "fan" for this burner part. If that's the case, many in the oilheating industry understand your terminology, since you are not alone in calling the blower of a burner a fan. "Fan" does have the virtues of being shorter than "blower" and of being a one-syllable word.

Although he does not aim at all to change your terminology or hint that it can stand correction, the technical editor of FUELOIL & OIL HEAT has a mild tendency to use the terms "centrifugal blower" or "blower" for the burner part in question, and to use "fan" for a propeller-like air-moving device like the one in a desk fan. Please see the advertisement on p. 105 of the March issue of FUELOIL & OIL HEAT, because it uses the terms "blower assemblies," "blower-filter package units," "direct-drive blower," and "blower exhauster," and has pictures of the equipment.

Q. *What's the highest pump-shaft speed you know of for a gear-type pump handling hot No. 6 oil in a large boiler room?*

E. R., Bronx, N. Y.

A. We have notes on a gear-type pump handling hot No. 6 oil and driven directly by a motor at approximately 850 rpm. The 1½ hp motor is unusual, having eight poles. Current is 60 cycle. Give the manufacturer of the heavy-oil pumps you use all the details, and ask him the maximum pump-shaft speed that will give good results on the job you have in mind.

Q. *Where can I get any charts that show the proper setting of spark points with relation to the nozzles of different makes and models of pressure burners?*

A. H. R., Lost Nation, Ia.

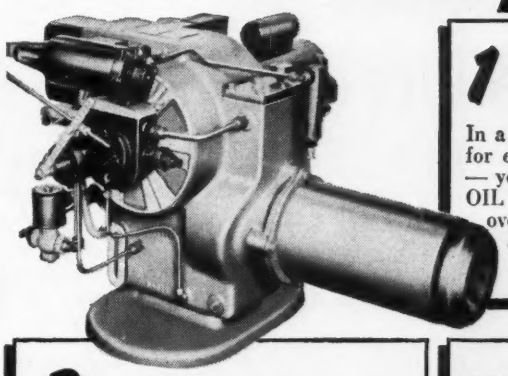
A. We never have seen or heard about such charts. Obtain instructions on setting the points of a particular burner from the manufacturer of the burner. Buy a good flame mirror and use it to check spark point settings with the burner in operation. Spark points should provide a spark gap no shorter than ⅛" and no longer than 3/16". The points must be clear of the nozzle and of air-handling parts by sufficient distance (usually at least ½") to avoid any chances of the spark's being short-circuited and failing to jump from point to point. The points must be close to the oil spray (within ¼" or ½" of the oil spray usually is good) but never in the oil spray.

Q. *Mr. Jean L. Dupuis: Please advise regarding Diag. 2, p. 117 of your article on big burners in the May issue of FO&OH, where and who makes the suction-bell electric heater?*

O. S. J., Camden, N. J.

A. The dealer discussed in the article, who is especially capable engineering-wise as the article indicates, makes up this suction-bell arrangement him-

HEV-E-OIL® Burners give you a big deal 3 ways!



1 BIG profits

In a typical locality, figures* show that for every $100 profit on a light oil job — you make $400 to $500 on a HEV-E-OIL installation. No extra work or overhead. Installation and service easy as any light oil burners. Replacement parts always available.

*On Request

2 BIG fuel users

Sell the big fuel user burning 6,000 gals. of oil, 45 tons of coal or heating a building with 1500 sq. ft. of radiation. Sell apartments, business buildings, churches, hospitals, hotels, institutions, laundries, industrial plants, warehouses, etc.

3 BIG repeat business

Top performance keeps users "sold" — proven by a long list of *repeat* buyers. Big fuel savings possible! HEV-E-OIL Burner uses No. 4 or 5 oil, costing 20% to 30% less per gal., with 8% to 10% *more heat* than light oil.

Find Out For Yourself... How the HEV-E-OIL Burner can help you make money on the big demand for heavier, lower-cost fuels. There are plenty of cost-conscious commercial and industrial prospects in your territory. So — get the biggest deal in modern heating profits — write for all the facts on the HEV-E-OIL Burner NOW!

HEV-E-OIL Burners are low-pressure, air-atomizing type burners. The only modern oil burners designed especially to burn low-cost No. 4 or 5 oil *without* pre-heating.

Ask for your copy of the NEW Planned Promotional Booklet — it's crammed with hard-hitting selling aids for you.

BURNER DIVISION • CLEAVER-BROOKS COMPANY

Dept. K, 379 E. Keefe Avenue, Milwaukee 12, Wisconsin

self. He uses an 8,000-watt electric heater element suitable for oilheating, of a type which can be obtained from any of several manufacturers of electric heating elements. To obtain information on suitable heating elements, write to the company that makes the electric oil heaters which are on the No. 6 fueloil burners you install.

Q. How do you really figure the gph firing rate of a house having 71,300 Btu net heat loss, closely calculated? Heeding advice you've published, I steer clear of pulsation and high fuel bill trouble by putting in this house a furnace of gross output of 125,000 Btu. Now I don't want to over-fire the actual heating load.

E. C. J., Charleston, West Va.

A. Divide the gross heat load—obtained by adding duct-loss and pick-up allowance to 71,300—by the available Btu's that come of firing 1.0 gph. Add 20% allowance and the gross load is 85,560. Divide this by 112,000 (140,000 Btu per gallon of oil multiplied by anticipated efficiency of 80% gives 112,000) and you arrive at a firing rate of about .75 gph.

We've often published our time-tested, commonsense rule: Fire as lightly as heats the house properly on coldest mornings. However you have in this house a furnace rated for firing up to 1.3 gph. Many servicemen would fire it at 1.0 gph to avoid nozzle-plugging troubles of a low-capacity nozzle.

Q. I'm confused because different engineers and books advise adjusting for widely different over-fire draft on domestic burner installations. One says .01" is correct, another .02", others up to .04". Still another says try "a trace," which is less than .01" but still negative draft. Please straighten out all this?

A. C. U., Holyoke, Mass.

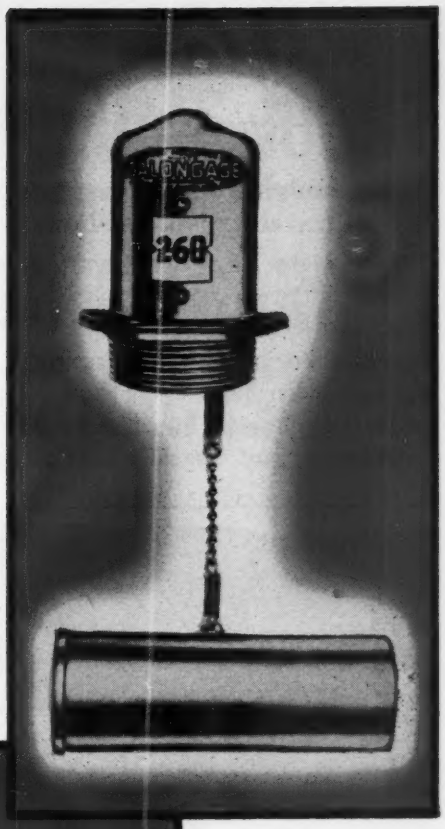
A. FUELOIL & OIL HEAT often has given this advice in feature articles and departments: Adjust for the lowest over-fire draft that avoids the troubles of insufficient draft. These troubles include soot, oil odors, and smoke around the furnace or boiler in objectionable amounts—which can be eliminated by adjusting for higher over-fire draft. Certain exceptional installations have boilers and furnaces with combustion spaces and flues literally air-tight and gas-tight so that soot, oil odors, and smoke cannot escape, even with the over-fire draft on the plus side. Test data on hand indicate these installations can perform splendidly with over-fire draft plus .02". Many fairly air-tight and gas-tight furnaces and boilers perform well and give highest efficiencies with over-fire draft between the trace of draft you define and minus .02".

❖

Bert Cale, eastern regional manager, Servel, Inc., has been named vice-president and member of the board of Servel-New York Corp., the company's distributing subsidiary in the New York metropolitan area and eastern New York State. Cole joined Servel in December, 1952.

SERVICE Instruments for Measuring
AIR TEMPERATURE and AIR VELOCITY
TEMPSCRIBE
Recording Thermometer
Available in 10 different ranges to cover −30°F to +160°F temperatures, and with spring-operated chart drives for any of the following chart rotations: 8 hours, 24 hours or 7 days.
This entirely self-contained, compact and reliable temperature recorder automatically writes a continuous record of temperature changes on a replaceable chart. Record shows at a glance maximum and minimum temperatures and the duration of temperatures above or below any given point; also shows the exact time of every temperature change and how rapidly it takes place. Recording pen and bi-metallic element are built in hinged, removable door which is also front of instrument. Thus, by merely changing doors it is easy to interchange temperature ranges or to convert to the Operation-Time Recorder described below. Instrument is 8" tall, 5½" wide and 4½" deep. Charts are 4½ inches in diameter.
● OPERATION-TIME RECORDER
This instrument has a door unit which is identical to the door of the Recording Thermometer shown above. It makes record of number, frequency and duration of electrical operations such as starting and stopping of motors, heaters, etc. Pen is moved by the energizing of an electro-magnet when contact is closed. Available for either parallel or series connection.
Ask your Jobber or Write for Bulletin 720
FLORITE
Air Velocity Meter
Available in two styles:
One with a scale of 0-1000 ft./min., and the other with a double scale of 0-3000 ft./min. and 0-35 miles per hour.
In principle, this unique instrument operates as an anemometer but provides instantaneous, direct readings of air velocity without timing, calculations or reference to charts. Readings are obtained by holding the instrument in the air stream so that air blows against its circular face, causing rotation of a multi-blade rotor mounted in instrument housing. The circular scale surrounding the rotor instantly turns to correct air velocity reading under an index pointer on scale window. This direct-reading anemometer is particularly useful for measuring air current velocities of air conditioning systems, grille velocities and air deliveries from registers and grilles; for balancing forced air heating systems, and for checking air distribution of all kinds of ventilating systems. Furnished with detachable handle (as illustrated), and leather case.
Ask your Jobber or Write for Leaflet 760
BACHARACH Industrial Instrument Co.
7301 PENN AVENUE • PITTSBURGH 8, PA.

YOU PROFIT in so many ways from the right GAUGE!



Galongage

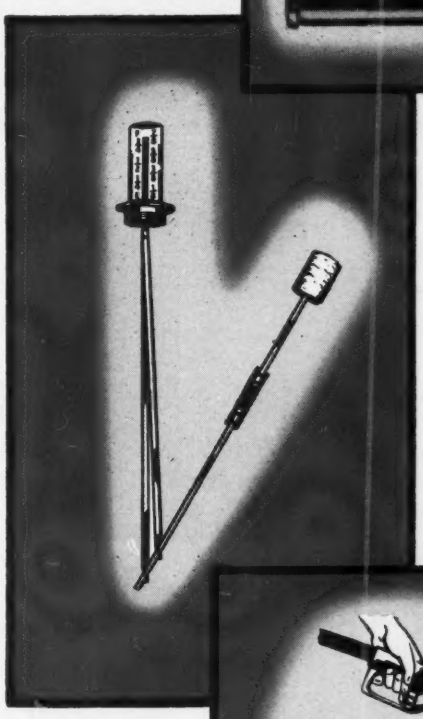
Here's a gauge you can ship for less because it weighs less . . . ⅓rd less than standard lever arm type gauges. Actually, Galongage is the *only* gauge which can be shipped in a standard carton of 24 by Parcel Post.

Galongage can save you storage space, too. Its package is only ¼th the size of that for lever arm types. And risk of damage is reduced, because the firm cardboard carton containing Galongage fits easily, safely in a serviceman's kit.

Galongage saves you time on the job. It is completely assembled, ready for quick and easy installation. Gets you by in tight places, because it needs only 4" clearance!

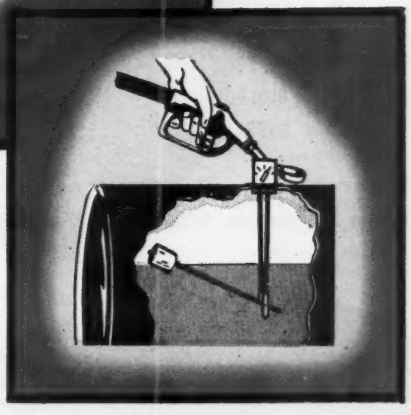
With Galongage you're saved needless call-backs because it's an accurate, reliable gauge whose float cannot become oil-logged. Galongage is Underwriters approved, of course.

But above all, the quality of Galongage, the fact that it "tells" in gallons, will give your jobs that special, extra touch because Galongage has overwhelming customer appeal!



International

Here's the best lever arm type gauge for profit in your lower priced field. Saves you installation time because it's factory-assembled. Saves you repeat calls, too, since its flexible float arm construction permits immediate oil-tight fitting. Has Underwriters' approval. International appeals to customers because the large-size numbers on the aluminum face can be so easily read.



Fil-thru

Simplest of all to install is the Fil-thru; gauge, vent and fill pipe in one convenient unit for 55-gallon drums. No tools needed.

For details, contact your distributor or write direct to: —

APPLIED MECHANICS CO.
167 OLIVER ST., BOSTON 10, MASS.

Manufacturers Activities

Penn schedules new Series of traveling control Shows

A NEW SERIES of Penn Controls, Goshen, Ind., educational shows, designed as a service to heating and refrigeration engineer and servicemen, began in Indianapolis, Ind., September 14 and will travel through several southeastern states. The show was created to give a dramatic visual demonstration in the use, construction, installation and servicing of automatic controls. Included in the elaborate equipment are giant controls which actually operate, colored slides, charts and operating systems demonstrators.

Shows are being arranged and sponsored in each city by local jobbers of Penn Controls. According to R. H. Luscombe, general sales manager, each will present a thorough demonstration of controls, after which installation problems will be discussed.

At present the Penn traveling Heating Control Show is scheduled to appear in the following cities: Cincinnati, Ohio, on September 17; Evansville, Ind., on September 21; St. Louis, Mo., on September 24; Memphis, Tenn., on September 28; Jackson, Miss. on October 1; New Orleans, La., on October 5; Mobile, Ala., on October 8; Montgomery, Ala., on October 12; Birmingham, Ala., on October 15; Atlanta, Ga., on October 19; Chattanooga, Tenn., on October 22; Nashville, Tenn. on October 26; Knoxville, Tenn., on October 29; Louisville, Ky., on November 2; Dayton, Ohio, on November 5; Columbus, Ohio on November 16 and Fort Wayne, Ind., on November 19.

The Refrigeration Control Show is scheduled to appear one day later in the same cities.

INSIDE story on trouble-free filtering
Eddington FUEL OIL FILTERS
CARTRIDGE REPLACED BY LOOSENING A SINGLE BOLT
DIE-CAST ALUMINUM CASE CANNOT RUST OR CORRODE
OIL SUBJECTED TO MANY SUCCESSIVE FILTRATIONS TO REMOVE EVERY TRACE OF SOLID AND GUM-FORMING IMPURITIES
LARGE SUMP COLLECTS WATER, SLUDGE, AND OTHER IMPURITIES —GREATER CARTRIDGE LIFE BETWEEN CHANGES
Made in two models: S-252 and S-254
EDDINGTON METAL SPECIALTY CO.
EDDINGTON, PENNSYLVANIA
FILTERS • NOZZLES • VALVES • STABILIZERS
AIR CONES • STRAINERS • INSPECTION MIRRORS
ADAPTORS • SERVICEMEN'S NOZZLE KIT
We'll be glad to send you complete information on any Eddington Products.
WRITE TODAY

Allentown Dealer wins "New Name for Junior" Contest

THE "NEW NAME FOR JUNIOR" contest conducted by Metromatic Mfg. Co., Everett, Mass., to find a more suitable name for its new model warm-air furnace and domestic hot water heater, originally called Metropac Junior, was won by Mrs. Howard Altemos, Altemos Heating and Service Co., Allentown, Pa. Her suggestion of Metropac Challenger was the unanimous choice of the judges and brought Mrs. Altemos the first prize of $300 Bond.

The $150 Bond, second prize, went to Kenneth Brayton, Hathaway Oil Co., New Bedford, Mass. Third prize, $50 Bond, was awarded to Hugh Ellinger, Southern Michigan Heating Co., Hillsdale, Mich.

Degree Day Systems has Prepared Degree Day Log

DEGREE DAY SYSTEMS, Woodside, N. Y., has prepared a Degree Day Log for 1953-54 which is available to oil-heating dealers.

The Log makes possible the keeping of day-to-day degree day records in easy and convenient form. In addition, the book lists other services which Degree Day Systems offers, such as pocket-size price cards, tank gauge sticks, fueloil order blanks, doorknob

WANT LARGE VOLUME JOBS?

GET THEM WITH GILBARCO SUSPENDED FURNACES

Lucille Footwear Co., Williamsport, Pa. This recently constructed plant is heated by 15 Gilbarco Suspended Furnaces, each of 200,000 B.t.u. capacity. Individual thermostats provide complete zone control.

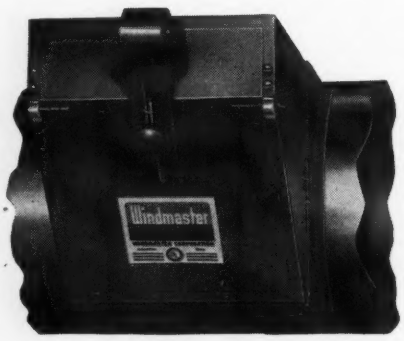
Four room basementless homes to three acre factories — small or big jobs — Gilbarco Suspended Furnaces will handle them all, competitively yet at a handsome profit. For Gilbarco Suspended Furnaces are easier to install, at a lower cost, than *any other type of oil-fired heat.* And you can figure large multiple installations with a minimum of engineering effort.

Gilbarco

the oil burner with the patented Economy Clutch

GILBERT & BARKER MANUFACTURING COMPANY • WEST SPRINGFIELD, MASS. • TORONTO, CANADA

Let 'er Blow this fall Windmaster's on the job



If you aren't already using Windmaster Draft Controls to reduce unprofitable service calls this Fall and Winter, ask your wholesaler about these important Windmaster performance advantages. Or, write direct for latest literature and prices.

What a relief to know that Windmaster is *already* on the job working for you when October winds blow! It's the serviceman's friend for cutting down on those unprofitable service calls and "problem" installations. Here are a few of the reasons why:

MORE RELIEF OPENING GIVES EXTRA PROTECTION — The square vane of Windmaster gives more free area. This means better effectiveness in relieving excessive draft and greatly improved burner performance regardless of draft conditions.

ANGULAR MOUNTED VANE FOR FASTER RESPONSES — Here's the answer to pesky pulsating jobs. With half the distance to travel, Windmaster's 45° angular mounted vane "arrives" quicker . . . gives more steady control of draft without lag-time or nervous quiver.

PERMANENTLY *SILENT* "JEWELED MOVEMENT" — This is the cure for many common draft control complaints and headaches. Windmaster's vane rides on silent bearings of molded DuPont nylon that outwear steel, are free from friction, immune to corrosion and unaffected by temperature extremes.

Windmaster Corporation
P. O. Box 776 • Columbus 16, Ohio

Windmaster Draft Control

Windmaster Corporation

notice cards, ticket books, stationery and printed forms, maximum-minimum thermometers and "K" factor calculators.

Oil equipment and oil handling manufacturers have taken advertisements in the Degree Day Log.

General Filters new Plant to triple production Capacity

COMPLETION of the new General Filters plant at Novi, Mich., a suburb of Detroit, triples previous production and office space of the Detroit firm. A feature of the plant is a greatly expanded engineering and research department.

A. D. Redner, president, General Filters, announced that the added manufacturing facilities will provide more prompt service to jobbers during the peak season.

Men held the lucky numbers *but their wives benefited most from prizes awarded at the New England O. H. I. Show, in Boston, by the Eureka Williams Corporation of Bloomington, Ill. A new Eureka "Roto - Matic" canister-type vacuum cleaner was given away daily via a number drawing at the Williams Oil-O-Matic display. William Zakeer (left) of Boston, Mass., is shown receiving the first "Roto-Matic" from C. S. ("Chet") Stackpole, division vice president, as Miss Oil-O-Matic (Gerane Barnaby) and Ivan Sutherland, Secretary of the New England O. H. I., look on. Other winners were James Williamson, Providence, R. I.; Laurence E. Lynch, Fall River, Mass.; and Robert D. Payton, Boston, Mass.*

Coleman fall heater Campaign sparked by network radio Shows

HITTING at the peak of the heater-buying season, The Coleman Co., Wichita, Kan., will use three top radio shows over the full NBC network for a special fall selling campaign beginning September 15 and concentrated in four weeks.

Oil and gas space heaters will be featured over all of the network of 216 stations except in about 40 cities in the South and Southwest where, because of market conditions, wall heaters and floor furnaces will be promoted.

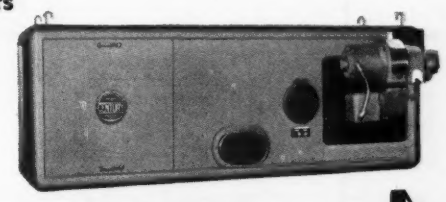
"This is the first major radio advertising promotion undertaken by The Coleman Company in more than ten

WHY there's EXTRA BUSINESS for you in the NEW CENTURY HORIZONTAL UNITS

You can help your customers save space. You can make sure they get efficient, economical heating at low operating cost. In gas stations, garages, stores and shops of all kinds the new Century oil horizontal units are the answer to space problems. And the Century trouble-free oil burner **guarantees** plenty of heat at low fuel cost. You can sell the perfect heating unit for the many new and recently constructed homes without basements or utility rooms. The new Century Horizontal units are especially designed for 'crawl space' installations . . . with front access to burner, blower and flue. Go after these two big and profitable markets with dependable Century equipment and you're in for plenty of **extra business.**

OUTSTANDING! Century Oil Horizontal Units

- **Available in four sizes. Bonnet output ratings: 85 - 105 - 135 - 165 thousand BTU.**
- **Easy overhead or 'crawl space' installations. Can be installed singly or in batteries.**
- **Units shipped completely assembled.**
- **Low in cost. Economical in operation.**
- **Equipped with oil burner manufactured by CENTURY — oil industry pioneers.**



AN OUTSTANDING NEW PRODUCT FROM

Century

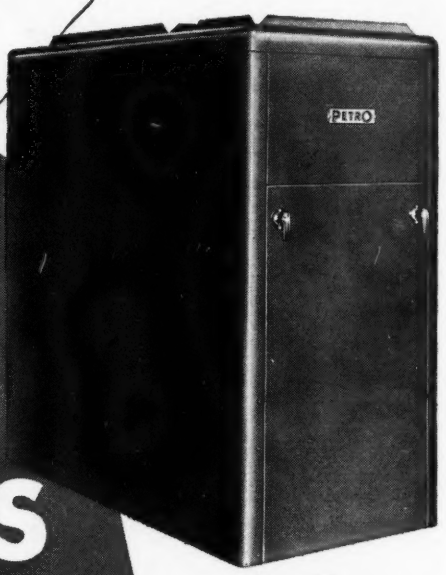
. . . The COMPLETE Heating Line

Go after that **extra business!** Mail this coupon today.

Century Engineering Corp., 404 3rd St. S.E., Cedar Rapids, Iowa
Please send me details on your new oil-fired horizontal units.
Name_____ Firm_____
Address_____
City_____ State_____

You need a good strong line to land 'em...

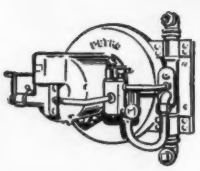
...that's why



Petro OIL BURNERS Pull in the sales

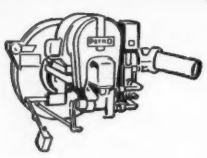
Residential Furnaces and Boilers

Real fuel savers. Made in popular sizes to fit the heating needs of homes of from 4 to 10 rooms.



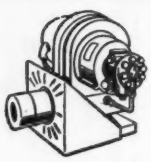
Industrial Oil Burners

Rotary type. Burn low-cost heavy fuel oil with complete reliability. Oil and oil-gas models for every industrial need. Capacities up to 200 gallons per hour.



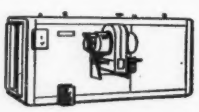
Combination Oil-Gas Burners

This commercial-industrial burner is the answer to seasonal fuel shortages. Makes possible advantages in economical fuel buying.



Conversion Units

Efficient, trouble-free oil burners for home and commercial use. Capacities up to 20 gallons per hour.



Horizontal Furnace

Hang it or hide it—this winter air conditioner fits anywhere. Available in 5 models from 80,000 to 180,000 Btu's (output at bonnet).

The BIG ones . . . the middle sized ones . . . the little ones—you can land 'em *all* with Petro. Whether it's residential, commercial, or industrial the long, strong Petro line has a model to answer the exact need.

You need strong "hooks" too

And Petro's got them! Hooks that help you sell, like the 50-year reputation of Petro dependability . . . the fuel-saving operation of every Petro unit . . . the compactness and attractiveness of the units . . . the ability to follow fluctuating load demands and the dependable, trouble-free service.

Yes, add all these to the ease of installation and you can see why Petro is easier and more profitable to sell. For illustrated literature and full information just write Petro, 3232 West 106th Street, Cleveland 11, Ohio. In Canada, write 2231 Bloor Street, West, Toronto, Ont.

Industrial and Commercial Oil, Gas and Combination Oil-Gas Burners. Residential Oil Burners, Oil and Gas Furnaces and Boilers

PETRO

T.M. REG. U.S. PAT. OFF.

50 YEARS OF LEADERSHIP IN AUTOMATIC HEATING AND POWER EQUIPMENT

Old Man Winter is at the door!
take a good look at your heating system . . . now!
Remember last winter? Well . . . there's no good reason for you and your family to suffer through another uncomfortable heating season of being *too hot, then too cold.*
Here's all you do. See your heating dealer now . . . ask him to show you how a *modern* automatic heating system controlled by the *modern* PENN *heat-anticipating* room thermostat *definitely* stops Hot-n-Cold living.
The PENN thermostat is no ordinary thermostat. It not only "feels" the changes in room temperature but *senses them in advance.* This amazingly accurate thermostat with its PENN-made magic of "heat anticipation" keeps room temperature within 1° regardless of outside weather conditions. And that's *real heating comfort for you and your family!*
Whether you buy a new heating plant or modernize your old one, *insist* on PENN Controls . . . they cost no more but give *much more in comfortable living.*
Penn Controls, Inc.
Goshen, Indiana.
PENN
COMFORT around the clock
For greater comfort, convenience and fuel economy, also get the PENN Tem-Clock. It lowers the temperature at bedtime so you can enjoy the restful sleep of a cooler home. Then, in the morning *before you arise,* Tem-Clock brings temperature back to daytime level. And it's all done *automatically!*
ENGINEERED COMFORT
PENN
AUTOMATIC CONTROLS
Selected by *leading manufacturers* for over 30 years
FOR HEATING, REFRIGERATION, AIR CONDITIONING PUMPS, AIR COMPRESSORS, ENGINES, GAS APPLIANCES

IT STARTS

buying action

WHEN YOU WANT IT!

Now . . . *before* the winter rush . . . is when you want your heating prospects to modernize their heating systems. These Penn Control ads help you get 'em going. They direct your heating prospects to see you *now* for more comfortable living this winter . . . they *pre-sell* your prospects on automatic heating with Penn's heat-anticipating thermostat and Penn heating controls . . . they make your heating sales job easier.

It's up to you to cash in on these free Penn salesmen! See your heating prospects right away . . . show them how to end Hot-n-Cold living with the Penn heat-anticipating thermostat . . . tell them why Penn Controls are best for *any* heating system.

There are big heating profits ahead. Get your share . . . write for a supply of Penn consumer literature and sales aids. **Penn Controls, Inc., Goshen, Indiana.** Export Division: 13 E. 40th Street, New York 16, N.Y., U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario.

THIS YEAR . . . OVER 30,000,000 MESSAGES WILL HELP YOU SELL

Above advertisement will appear in the September issues of Better Homes & Gardens and American Home . . . and the September 14 and 28 issues of Newsweek. Similar Penn ads will appear in the October and November issues

PENN

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

years," Carl L. Burrows, national sales manager, said.

Called "Operation Tandem," the three-show Coleman package will star William Gargan in "Barrie Craig, Confidential Investigator," for four Tuesday nights, beginning September 15; Eddie Cantor in "The Eddie Cantor Show" for four Thursday nights beginning September 17 and Jimmie Stewart in four broadcasts of "Six Shooter," a Western which will make its debut on Sunday, September 20.

Dealers throughout the country will be able to tie-in with the network shows through local spots, in addition to which the fall heater program also is being carried out through backbone newspaper advertising and a bonus campaign.

When the *100,000th Winkler oilburner rolled off the assembly line this summer at Lebanon, Ind., three executives attached the serial number and put the unit through a series of firing tests. Shown left to right are Carl J. Winkler, general manager of U. S. Machine Division, Stewart-Warner Corp.; Herman E. Winkler, assistant general manager and Claude A. Potts, general sales manager. The unit was a low pressure oilburner, included in a shipment consigned to Catlin & Haag, Rochester, N. Y.*

American-Standard radiator heating Catalog wins Award

THE AMERICAN-STANDARD Radiator Heating Catalog, R 52, published by the American Radiator & Standard Sanitary Corp., Pittsburgh 30, has been awarded a Certificate of Merit in the Fifth Annual Building Products Literature Competition, jointly sponsored by the American Institute of Architects and the Producers' Council, Inc.

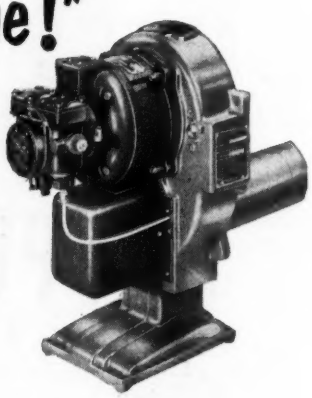
Described by the Jury of Awards as "an excellent manual . . . that offers all the data an architect needs in a form which encourages reference . . . ," this catalog was praised also for its recessed index which "has been used most effectively."

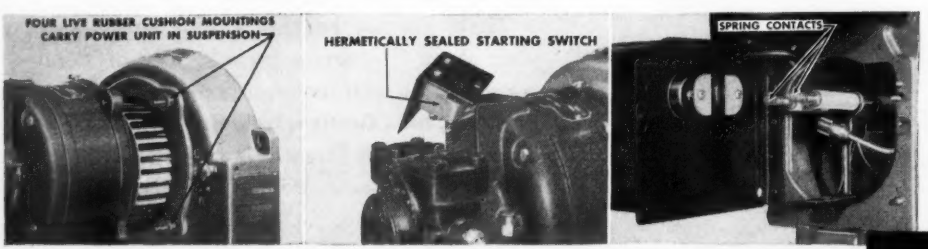
Containing complete information about American-Standard radiator

(*Please turn to page* 104)

"Old rocking chair's got me!"

Today, ROCKING CHAIR COMFORT has become the by-word of service men who know Beckett COMMODORE oil burners. Engineering foresight eliminates inconvenient and tedious adjustments. Note the time saving features below.




FOUR LIVE RUBBER CUSHION MOUNTINGS CARRY POWER UNIT IN SUSPENSION
HERMETICALLY SEALED STARTING SWITCH
SPRING CONTACTS

Cushioned-Power

Minimum Adjustments

Compact Symmetrical Design

The Power-Unit is removable as a single unit from the rear.

NOTE: The Power Unit (comprises all moving parts) suspended in rubber prevents metal to metal contact and sound transmission.

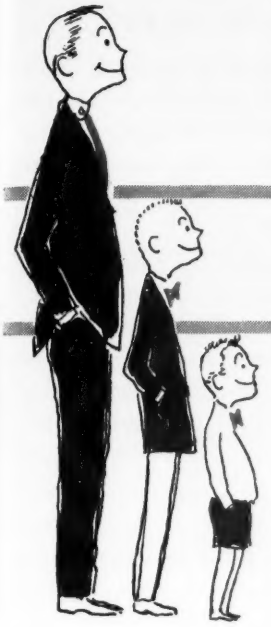
Sealed Starting Switch at top of motor . . . Simplifies service. Remove only one screw for access to motor switch . . . not necessary to remove motor or Fuel Unit.

Convenient access to nozzle-electrode assembly . . . No ignition cable. Spring contacts automatically make connection when transformer is closed.

ALL VITAL PARTS ACCESSIBLE FROM BACK OF BURNER

BECKETT Commodore OIL BURNERS

R. W. BECKETT CORPORATION, ELYRIA, OHIO



Let **OHI** *help your oil-heat business* **GROW!**

Put the services of Oil-Heat Institute—the only *national* trade association serving the oilheating industry—to work for *You!*

Why has OHI's Distribution Division grown in stature nationally, locally—become THE dominant force in our industry with a voice that's heard and heeded? Because thousands of other hard-headed, shirt-sleeve, fuel oil and oil burning equipment dealers and service firms know OHI works for *them*, and their industry *alone!*. Add YOUR strength to the group impact of organized local OHI chapters. In areas not served by chapters you can join as an Associate member for only $15.00 a year.

✓ **WANT HELP IN MEETING COMPETITIVE FUELS?**
OHI's got it to give—and more is on the way. Get in on the "Treasury" for the best—planned merchandising materials the industry offers.

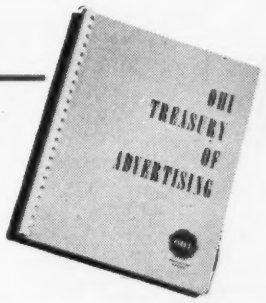
✓ **WANT A HOOK-UP WITH THE INDUSTRY NATIONALLY?**
No matter where you do business, you're not alone with OHI behind you. And have you heard about OHI's low-cost group insurance programs, with coverages up to $15,000?

✓ **WANT MORE AND BETTER OIL HEAT INFORMATION?**
The confidential monthly Dealer Letter, frequent bulletins and contact direct through OHI headquarters gives you the "know-how" of the entire industry.

✓ **WANT HELP IN SOLVING TECHNICAL PROBLEMS?**
Count upon OHI's technical advisory resources, backed, in the field, by more than 2,000 OHI members across the country —*practical*, friendly consultants in *your* business—or OHI's powerful Manufacturer, Accessory Manufacturer, or Technical Divisions.

✓ **WANT AGGRESSIVE ORGANIZATION FOR YOUR LOCAL GROUP**
Let OHI show you how to organize effectively to put life and vigor into your local industry and improve competitive conditions.

✓ **WANT ALL OF OHI'S OTHER BENEFITS THAT HELP PUT YOUR FIRM "IN THE KNOW" AND "ON THE GO"? WRITE TODAY ABOUT MEMBERSHIP TO —**



THE BIGGEST YET IN SALES PROMOTION CAMPAIGNS TO BUILD YOUR BUSINESS!

It took OHI to produce this "Treasury" of sales promotion-advertising aids that gives you the kind of merchandising literature and materials you NEED! Get in on it today. Sections, to be added to from time to time, include:

BASIC SALES LITERATURE
Booklets and folders to build business with present customers and prospects.

SELF-MAILERS THAT GET LEADS
Prospecting help for new fuel oil and oil burner customers.

SERVICE CONTRACT PROGRAMS
Service contract plans and the materials to promote them.

BUDGET PLAN PROGRAMS
Literature and budget coupon books for various budget programs.

NEWSPAPER, RADIO, TV AND OUTDOOR
Newspaper mats, TV or radio commercials, truck bumper strips, billboard layouts.

POINT-OF-USE ADVERTISING
Oil burner stickers, 4-color oil-heat calendar, cellar card.

MORE IDEAS
The history-making "Truck Operator's Manual" . . . fuel oil agreements . . . customer good-will mailers. . . .

* * * * *

And the Treasury Portfolio itself is a condensed course in merchandising for management—a gold mine of tips and "how-to" information in effective merchandising.

OIL-HEAT INSTITUTE OF AMERICA INC.
DISTRIBUTION DIVISION · 500 FIFTH AVENUE, NEW YORK 36, N. Y.

Oil Burner Manufacturers Endorse the New

HIGH DELIVERY AIROTOR Blower Wheels
REG. U. S. PAT. OFF.

Especially useful in Oil Burner applications

The new "H" Series (High Delivery) Airotor Blower Wheel enables most oil burners to qualify for an upward revision of rating — or to attain existing maximum rating far more easily — at no increase in manufacturing cost.

- **Delivers up to 15% more air with no change in dimensions.**
- **Working area of individual blades increased and blade curvature made more effective.**
- **Operates effectively against higher static pressures.**
- **For applications where motor load is critical, some testing to evaluate effect on motor load will be necessary.**
- **Available in 4¼", 4¾", 5¼" and 6⅜" diameter Airotors in all popular widths. Priced same as standard Airotors.**
- **Samples for test purposes or performance graphs available on request.**

For complete information write Torrington today . . .

The TORRINGTON MANUFACTURING COMPANY
TORRINGTON, CONNECTICUT

Western Division: Van Nuys, California **In Canada: TMCo., Ltd., Oakville, Ontario**

(*Begins on page 84*)

heating equipment, this book is divided into five sections classified under the headings of Boilers, Radiation, Conversion units and water heaters, Controls and accessories, and Installation and application data.

Construction details of each unit as listed along with the ratings and dimensions, tappings, and other pertinent data. A uniform arrangement of the material throughout the catalog permits quick and convenient comparison of the products with one another.

New Service puts Industry Statistics in Newsletter

UP-TO-DATE market facts of the plumbing, heating and airconditioning industry are brought together in a new monthly marketing service known as "The Tyler Letter" published by the Tyler Advertising Agency, New York. Statistics of all branches of the industry are assembled and digested in the four-page newsletter. It is planned especially for industry executives concerned with marketing and for their advertising counsel.

"Today, a jungle of scattered and overlapping statistics confronts any marketing man in our industry," Parker R. Tyler, Jr., Tyler Advertising Agency head said. "Fragmentary data are available from most of the 'industries-within-an-industry.' But nobody until now has taken on the job of assembling all of the current facts in one convenient place. That's our aim."

Fields covered by the service each month will include: housing starts; comparison of new construction with the estimates; automatically-fired installations broken down by oil, gas and coal, cast-iron boilers and radiators, baseboard—both cast iron and finned tube, warm air units, water heaters, electric and gas plumbing fixtures both by dollars and units.

Delavan offers nozzle Rack free to jobber Customers

AN OILBURNER NOZZLE RACK is being offered, free, to jobber customers of Delavan Mfg. Co., West Des Moines,

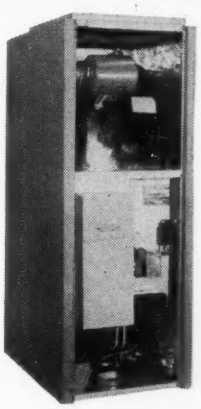
(*Please turn to page 150*)

New Products

Each New Products item has an identifying number. If you want more information on any equipment listed here, circle the corresponding number on the reply card appearing at the bottom of the page and mail to us.

G-E oil Furnace in two Sizes for basementless Installations

A NEW G-E oil downflow furnace is factory-wired and assembled, is completely enclosed in a light gray steel jacket, will pass through a 28" doorway and is easily installed. The unit can be placed in a closet or in a utility room. It requires only one inch of clearance on the side and two inches in the front and back for closet installation. Convenient servicing is provided for by easy-access through the frontpanel which lifts off.



The new furnace is equipped with a flame detector safety device that shuts down the unit in seconds if the oil flame fails. Its blower and motor are rubber-cushioned to counteract vibration and the unit is completely insulated with heat-holding and sound absorbing material. The "Spira-Flow" heat transfer section features a baffled surface to give quick

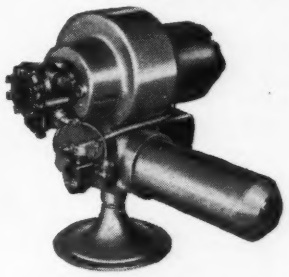
FUELOIL & OIL HEAT *(Sept. 1953)*
2 West 45th St., New York 36, N. Y.

We want more information about the New Products item whose number I have circled below. Please secure this for me from the manufacturer.

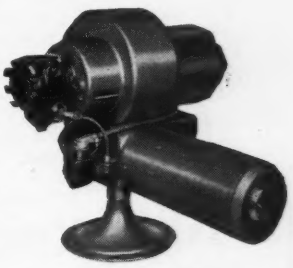
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48

Name ..... Title .....
Company .....
Street ..... Zone .... State .....

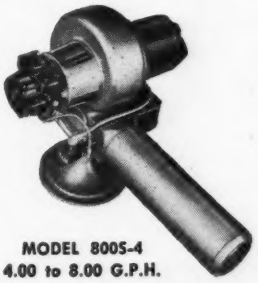
AVAILABLE IN 4 U.S. MODELS



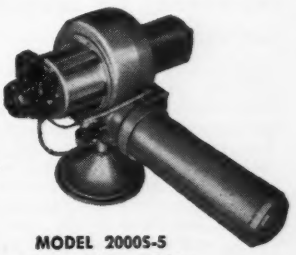
MODEL 400S
0.50 to 3.00 G.P.H.



MODEL 600S-4
3.00 to 6.00 G.P.H.



MODEL 800S-4
4.00 to 8.00 G.P.H.



MODEL 2000S-5
8.00 to 12.00 G.P.H.

How would you like to sell the "consumer-demand" features of the High Temperature Combustion Head . . . a feature that helped to *put* and *keep* the sales of U. S. oil burners in first place for the past twenty-eight months in a major metropolitan market? How would you like a franchise that means bigger, better profits for you? Interested? Want more details?

Contact your supplier or write us, today.

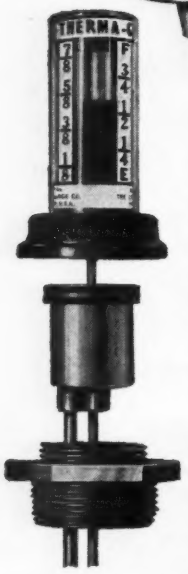
U. S. BURNER DIVISION

HERE THEY ARE...SENTRY'S TWO NEWEST ADDITIONS TO THEIR EVER-POPULAR

AT-A-GLANCE
(DIRECT AND REMOTE)
TANK
GAUGES

THERMA-GAUGE

A superior quality, precision instrument with full view, solid red thermometer-type indicator

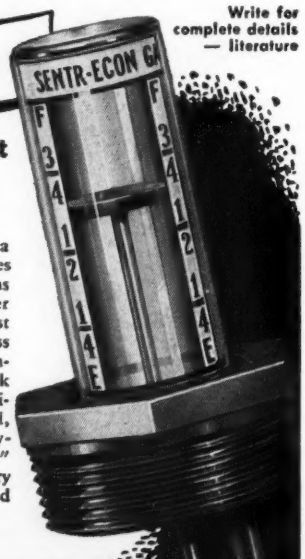


Without question, here is the easiest to read, *accurate measure* gauge on the market—And, the easiest to install, whether tank is empty, full or partially full. Unit features zinc base metal, two-piece die-cast assembly — Unbreakable red plastic assembly nut — Calibration chart, sealed between heavy, heat-resistant plastic domes—Brass rivets—And, a *double coated* cork float that's impervious to oil, many chemicals and acids. No gears, magnets, cams or tapes. Guaranteed to withstand in excess of 70 lbs. pressure per sq. inch. Tailor-made to fit individual tanks up to 12 ft. deep. Calibrated and factory adjusted.

QUICKLY, SIMPLY INSTALLED. Illus. at left shows how entire calibration and float assembly may be inserted and positioned *after* two piece die-cast tank plug has easily been installed in tank — only an ordinary wrench is needed.

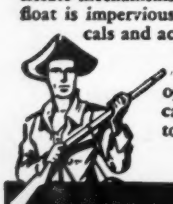
SENTR-ECON

Write for complete details — literature



A new, durable, low cost instrument for economy installations.

Exceptionally high quality for such a competitively priced gauge. Features patented *double dome* with calibrations positioned between inner tube and outer heat-resistant plastic shell. Also, die-cast tank fitting — plated metals — brass rivets. No gears, magnets, cams or intricate mechanisms. *Double coated* cork float is impervious to oils, most chemicals and acids. Simple to install, even in partially-filled tanks. 1½" openings only. Factory calibrated and adjusted to insure accuracy.



KRUEGER *Sentry* GAUGES
GREEN BAY · WISCONSIN

heat. The motor compressor is of single shaft construction and is self-lubricating.

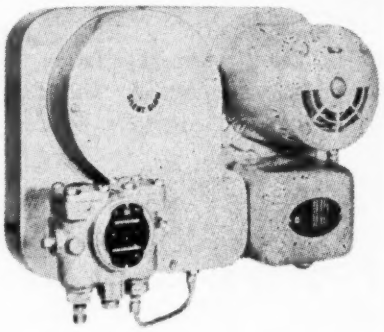
The LB-15JD, 60,000 Btu/hr. output, is 21" wide, 30⅛" deep and 55" high. The larger LB20JD 85,000 Btu/hr. output is 25" wide, 30⅛" deep and 55" high.

Made by: General Electric Co., Home Htg. and Cooling Dept., Bloomfield, N. J.

Circle No. 1 on coupon

Silent Glow Coronation Oilburner with functional panel type Design

THE SILENT GLOW Coronation oilburner, introduced recently, spans a firing range from 0.75 to 4.0 gph and features a functional, panel type design. The burner is extremely compact and can be custom fitted to the exact needs of any installation within its range. This is accomplished through variable drives so that air and oil can be supplied at required proportions and each component can be made to work at maximum efficiency.



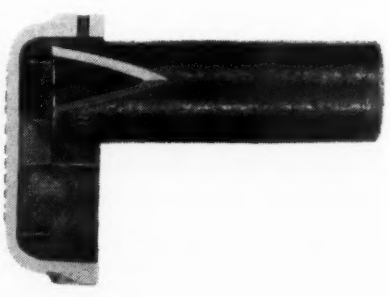
"Dynamic silencing" results from the pump, fan and motor operating at different speeds, the explanation being that this blends any vibration and silences it. The burner employs belt drive, weighs only 48 lbs.

Made by: The Silent Glow Oil Burner Corp., 850 Windsor St., Hartford 1, Conn.

Circle No. 2 on coupon

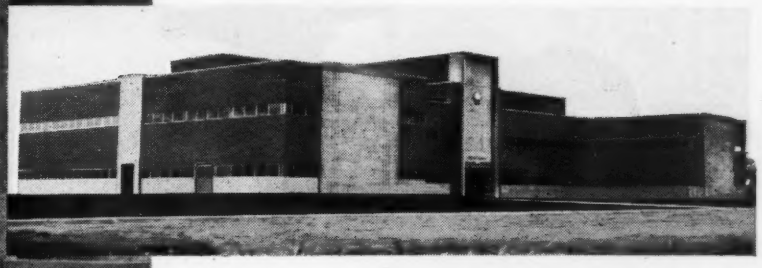
Sicard and Paul tank vent Cap installed with single set Screw

A NEW TWO-WAY tank vent cap called the 2-in-1, fits two different pipe sizes. Only three models are needed to fit any pipe used in storage tank installations. Pipe threading is eliminated by the 2-in-1. The cap is set on the pipe and tightened with a single set screw. Installation time is ten seconds or less. An Allen wrench is the only tool needed.



Rugged and durable, the all-purpose unit of one-piece, cast iron construction, designed to meet the specifications of all known building codes. Model SP-125 fits 1¼" or 1½" pipe; Model SP-200 fits 2" or 2½" pipe; and Model SP-300 fits 3" or 4" pipe. Weights are 1¼, 2½ and 3½ lbs.

How Shell research scientists discovered a new way to solve an old problem . . . and made another contribution to better oil heat



SHELL SONITOR

ONE OF THE long-standing problems in oil heating plant maintenance has been storage tank failure caused by internal corrosion.

Corrosion of this type starts at the bottom of the tank where it often goes on undetected until a leak develops. Its cause is water, a source of which is the moisture that condenses from the humid air breathed in through the tank vent. Being heavier than oil, the water sinks to the bottom, starting the corrosion cycle.

Shell research scientists were asked what could be done to combat this costly annoyance. After thorough, long-range investigation and field-testing in more than 50,000 home oil tanks . . . their answer was *Shell Sonitor* . . . a new tank corrosion inhibitor that gives several years of protection with *one* application.

Sonitor is soluble in *water* alone. Consequently, it is consumed only in proportion to the amount of water present in the tank. Never before has a tank corrosion inhibitor been available that gives such long-lasting protection.

Sonitor is just one more advantage distributors of Shell Furnace Oil can pass along to their customers.

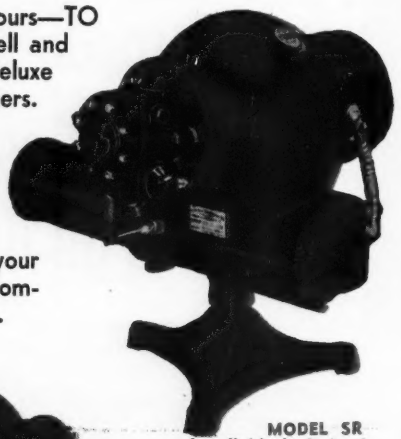
SHELL OIL COMPANY

SHELL

SILENT KORTH

The Service Free Burner

The profits are yours—TO KEEP—when you sell and install Quality Deluxe Silent Korth oil burners. Dependable performance eliminates costly service calls. Service-free Korth saves you time, protects your profits, invites recommendation business.



MODEL SR
(available in 2 sizes)
.75 to 3.0 G.P.H.

MODEL T
(available in 4 sizes)
.75 to 20.0 G.P.H.

QUALITY
Standard Specifications

GENERAL ELECTRIC or OHIO Motor with Thermal Overload. SUNDSTRAND Fuel UNIT. JEFFERSON Ignition Transformer. MINNEAPOLIS-HONEYWELL Controls—Thermostat, Relay, Plain Limit. ONE PIECE CAST HOUSINGS: Motor & Pump Bores Machined for accurate alignment. LOVEJOY 3-PIECE FLEXIBLE COUPLING Connecting Motor & Fuel Unit for quiet operation. All the way thru—SILENT KORTH is built for outstanding performance!

Get More REPLACEMENT BUSINESS

Write for FREE colorful envelope stuffers, literature, specification sheets. 16" window and truck decals and newspaper mats.

JOBBERS Protected on Dealer Sales. Write for new Net Prices.

SILENT KORTH OIL BURNERS & PARTS ARE SOLD ONLY THRU JOBBERS & DEALERS

ECKHART MFG. CO., INC.
UNION, NEW JERSEY

respectively. Filter screens for each model, where required by local ordinances, are included for a minimum charge.

Made by: Sicard & Paul, 2921 Stevens Ave., Minneapolis 8, Minn.

Circle No. 3 on coupon

Heet-O-Matic night set-back Control operates non-clock Thermostats

HEET-O-MATIC is a time clock device used to shut off heating systems at night and turn them back on again in the morning. The device, which can be operated with any make of non-clock thermostat, actually works by fooling the thermostat with a small heating coil, turned on and off by the unit's timing mechanism. The heat from the coil escapes through the opening in the top of the case during the night, increases the temperature of the air surrounding the thermostat by approximately 10° and thus keeps the heating system from operating unless room temperatures drop more than 10°.

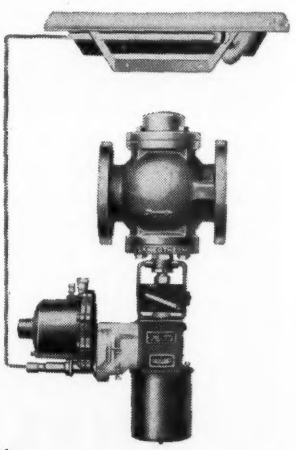
Available now is an introductory plan for Heet-O-Matic for fueloil dealers, including cooperative advertising, display materials and literature, designed for the dealer to sell the device to his customers as a good-will builder, to add new accounts or as a straight profit item.

Made by: Automatic Controls Corp., Ann Arbor, Mich.

Circle No. 4 on coupon

Sarcostat, weather-compensated Control for steam Heating

SARCOSTAT SYSTEM is a continuous flow, weather-compensated control system for steam heating. Its double seated, closely balanced control valve meters the heat admitted to a building by maintaining a given pressure differential across the system for any given outdoor temperature. An auxiliary bulb in the system forms a common liquid-filled system with the outdoor bulb and is electrically-controlled by a remote panel. This allows manual adjustment from any location or from a central point if a number of zone valves are installed.



The Sarcostat valve is an hydraulic-electric control in-

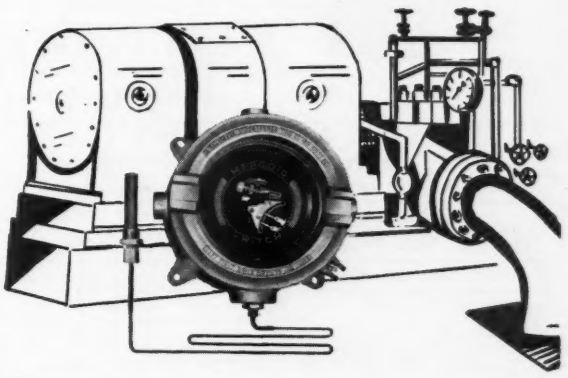
MERCOID® CONTROLS

EQUIPPED WITH SEALED MERCURY CONTACT SWITCHES

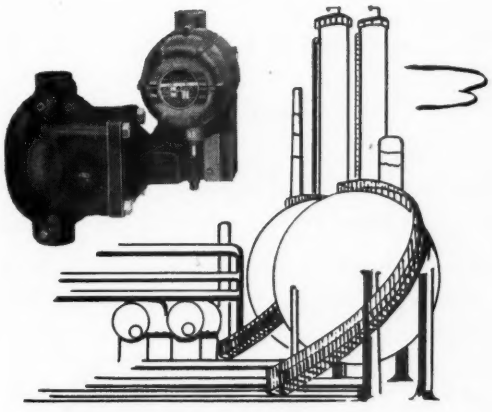
FOR THE HOME AND INDUSTRY

FROM THE OIL WELL

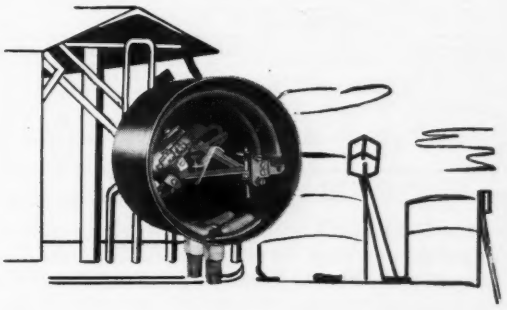
TO THE PUMPING STATION



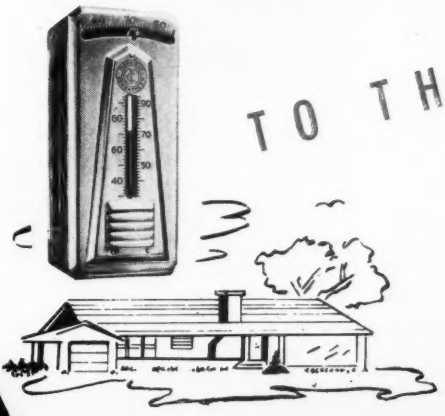
TO THE REFINERY



TO THE BULK PLANT



TO THE HOME



WHEREVER CLOSE AND ACCURATE CONTROL IS REQUIRED FOR PRESSURE, TEMPERATURE, LIQUID LEVEL OR MECHANICAL MOVEMENT, THERE IS A MERCOID CONTROL AVAILABLE FOR THE JOB.

Write for catalog No. 700A.

THE MERCOID CORPORATION

4209 BELMONT AVENUE • CHICAGO 41, ILLINOIS

Philadelphia: 3137 N. Broad St.

New York: 205 E. 42nd St.

ADDED FEATURE in Midget 2 & 3 Way Solenoid Valves

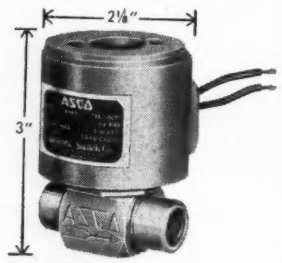
ASCO

Explosion-Proof

protection for

Personnel, Production & Plant

ASCO Midget Valves are now available with explosion-proof housings, designed in accordance with Underwriters' recommendations for use in Class 1, Group D hazardous locations. These Bulletins 8262 & 8314 ASCO Valves with the Explosion-Proof Solenoid Enclosure (they're also water tight) may be just what you need. Classed as "small" valves, they are doing a big job in the automatic and remote control of air, gas, water, light oils, refrigeration and other fluids.



Bulletin 8262 Two-Way ASCO Solenoid Valves (Illustrated) can be obtained with by-pass and metering devices. Valves can be installed in any position. Bulletin 8314 Three-Way Valves can be applied to any 3-way valving requirement regardless of flow directions or pressure application points; no change of springs or other adjustments are necessary. These valves can also be mounted in any position and will give positive tight shut-off.

BULLETIN 8262

2-Way Valve (Normally Closed)**

(Available for all commercial and industrial voltages)

Body Material		Brass or Stainless Steel			
Pipe Sizes (inches)		1/8		1/4	
Orifice Diameters (inches)		1/16	1/8	5/32	3/16
Maximum Pressures lbs./sq. in.	A-C	300*	130	90	60
	D-C	250	70	50	30

*Available 1000 psi in stainless steel; 500 psi in brass.
**Also available normally opened.

BULLETIN 8314

3-Way Valve

(Available for all commercial and industrial voltages)

Body Material		Brass or Stainless Steel	
Pipe Size (inches)		1/8	
Orifice Diameters (inches)		3/64	3/32
Maximum Pressures lbs./sq. in.	A-C	125	45*
	D-C	50	25*

*Pressures slightly lower for liquids.

Since 1888 ASCO Engineers have specialized in the constantly expanding field of Electromagnetic Controls. They have pioneered many new developments and have revolutionized many of the older concepts of automatic controls. Industry looks upon ASCO as one of the leaders in Electromagnetic Controls. Why not let our engineers help you with your problem whether it involves control on a machine of any kind you are designing or control of liquid or gas in your plant?

We also manufacture other types of Electromagnetic Controls including Automatic Transfer Switches, Remote Control Switches, Contactors, Relays and complete Control Panels.

Write for free pamphlet "Small Solenoid Valves."

ASCO Solenoid Valves

Automatic Switch Co.

385-F LAKESIDE AVENUE · ORANGE, NEW JERSEY

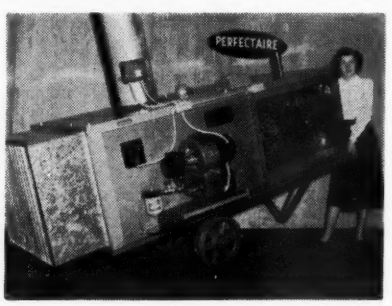
strument, outdoor and auxiliary bulbs being liquid-filled to transmit changes in load conditions to the valve operator. The operating control actuates a number of electrical switches which operate the hydraulic motor. Connections to the supply and return mains from the valve operator measure the differential pressure in the system.

Made by: Sarcotherm Controls, Inc., Empire State Bldg., New York 1, N. Y.

Circle No. 5 on coupon

Perfectaire oilfired mobile Heater for temporary or emergency Heat

PERFECTAIRE oilfired mobile heaters are available for a number of applications, such as temporary or emergency heat, crop drying, plaster drying in new construction. Units deliver up to 425,000 Btu/hr and are complete with self-contained fuel tank and controls. Installation is accomplished by plugging in to an electric outlet.



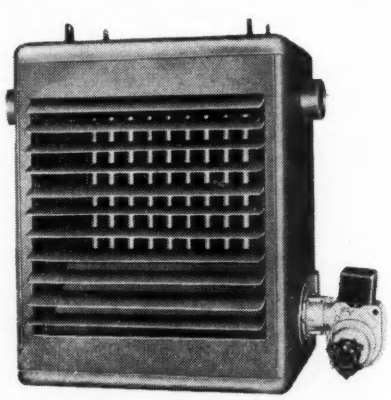
The unit is mounted on its own wheeled-truck so that it can be moved easily. Flange-mounted gun type oilburner fires the heater.

Made by: Air Conditioning Engineering Co., 44 First St., Cambridge 41, Mass.

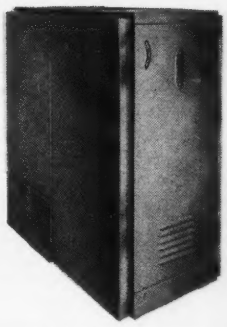
Circle No. 6 on coupon

Delta Heating's unit Heater fired with gun type Burner

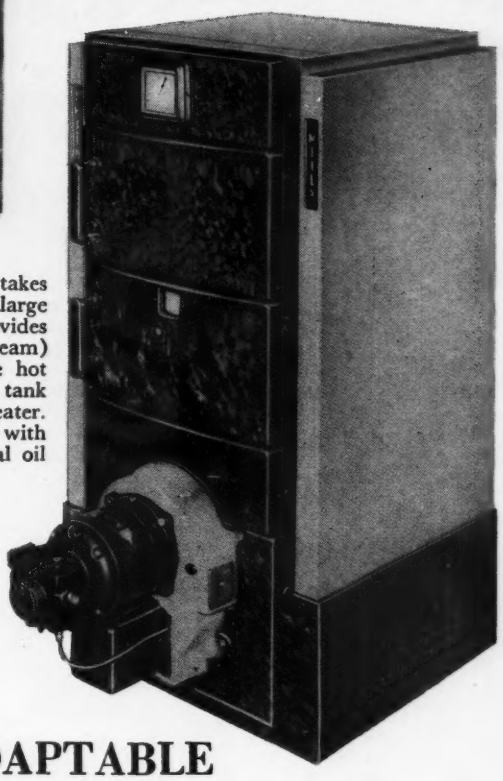
DELTA HEATING has developed a unit heater, fired with a conventional gun type oilburner. Vertical flue travel permits the products of combustion to be exhausted into the atmosphere through a short flue pipe. Burner and flue outlet can be attached to either side of the heater. Heat output is 220,000 Btu/hr, when fired with a 2 gph nozzle; air delivery is rated at 5,730 cfm. The unit weighs 390 lbs., complete with burner and controls, measures 49½" high, 39" wide, 21" deep.



The unit, which is factory-assembled and shipped with all controls wired, is provided with hanging hooks for suspension from the ceiling and also has four ½" bolt holes on the bottom of the casing for attaching the unit heater



The Smith-Mills "100" takes up no more space than a large wardrobe trunk. It provides fast heat (hot water or steam) and the luxury of ample hot water . . . either built-in tank type or "tankless" heater. Comes with flush jacket or with jacket extension to conceal oil burner.



1853 1953

They carried big boilers through little doorways

. . . and we still do

Ulysses S. Grant was President of the United States. The War Between the States had ushered in a new era. People—and ideas—were on the move.

One of these ideas was hot water and steam heating, pioneered since 1859 by H. B. Smith & Company. Rapid strides had been made in the improvement of its sectional cast iron boiler, and in piping, valves and radiators. And many business leaders were having their homes remodeled to enjoy this new form of central heating.

H. B. Smith & Company was jack-of-all-trades in this work. Its employees designed, estimated, sold and installed heating systems from Washington, D. C. to Portland, Maine. For there were few heating engineers and no heating contractors. In fact, many of the earliest contracting firms were founded by men who got their training in the manufacturing and erecting crews of H. B. Smith & Company.

And so a new and important group of trade and professional men developed . . . men who over the years have brought to American homes and industry increasingly efficient and economical heating systems. Recognizing the desire of the heating contractor to serve his customers with the finest possible products, The H. B. Smith Company constantly strives to fulfill its obligation by providing the last word in heating equipment.

• MORE ADAPTABLE
• BETTER LOOKING
• LOWER COST

. . . the H. B. Smith-Mills "100" is ideal for the Average Home Installation

Now . . . more than ever before, the Smith-Mills "100" Boiler-Burner Unit is the answer to the heating and hot water requirements of the average home. The record of the "100" since its introduction has been one of top efficiency and low maintenance cost. Always a prime favorite among heating contractors, architects and builders, the boiler's latest improvements make it adaptable for practically every home of average or "average-plus" size.

All of the outstanding, time-tested features of the unit have been retained — *with important improvements:*

Increased Hot Water Capacity — A line of tankless heaters with capacities up to four gallons of hot water per minute! The largest tankless heater available in a unit this size.

Improved Appearance — Attractive jacket in new Centennial "Hammertone" Blue enhances the appearance of the entire unit.

Lower Cost — The "100" boiler-burner unit provides a top-quality installation where building budgets are modest.

Now, more than ever before you can specify the Smith-Mills "100" Boiler-Burner for *BIG* boiler performance in a residential unit.

A CENTURY IN '53

OUR YEAR OF GREATEST PROGRESS

H.B. Smith

CAST IRON BOILERS

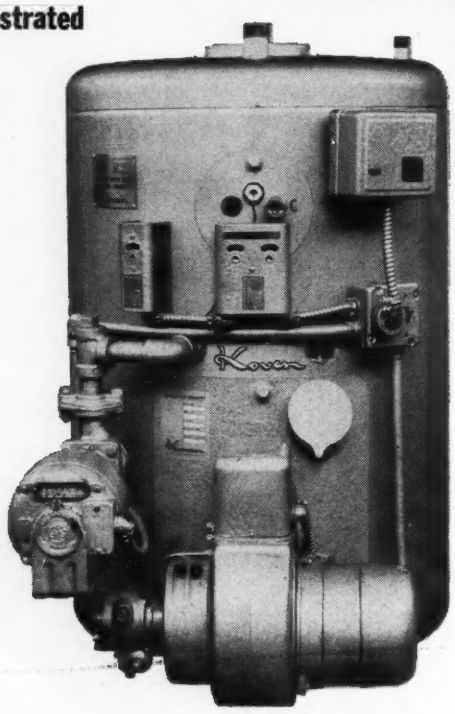
EASIEST TO INSTALL • EASIEST TO SERVICE • EASIEST TO EXPAND

THE H. B. SMITH CO., INC., WESTFIELD, MASSACHUSETTS

Established 1853

fully wired and assembled

as illustrated



Save installation time

venko

GAS OR OIL FIRED

PACKAGED UNIT

BY

+ Koven

PLENTY OF HEAT AND HOT WATER

SPEEDY INSTALLATION

Quick as hello and goodbye

FITS THROUGH A 30 INCH DOOR

in easy one-man handling crate

FUEL SAVER

economical to operate

BUILT TO FIT THE MODERN HOME

compact, rugged construction saves space

ONE OF AMERICA'S LARGEST STEEL FABRICATORS

NATIONALLY ADVERTISED

WATERFILM BOILERS, INC.

a division of L. O. KOVEN & BRO., INC.

36-40 New York Ave., Jersey City 7, N. J.

Plants: Jersey City, N.J. • Dover, N.J. • Trenton, N.J.

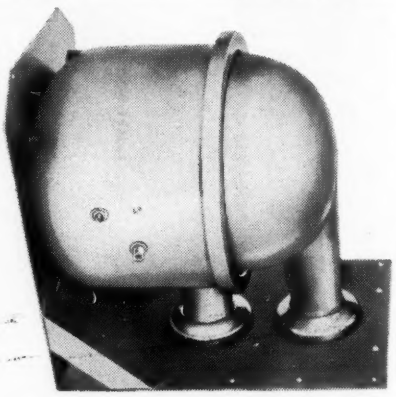
to a portable platform or dolly for temporary heat and similar applications. Designated model UH220, the heater distributes air by means of a ½ hp propeller fan.

Made by: Delta Heating Corp., Trenton 8, N. J.

Circle No. 7 on coupon

Model WF Walton Humidifier for residential warm air Systems

MODEL WF Walton humidifier is manufactured of copper, brass and other non-ferrous materials, designed for use with a residential warm air system. The unit employs the Walton principle of producing a water vapor by use of a centrifugal mechanical atomizer and supplies moisture at a constant rate with positive humidification.



Evaporation of water is better than 3 gals. per day.

Made by: Walton Laboratories, Inc., 1186 Grove St., Irvington 11, N. J.

Circle No. 8 on coupon

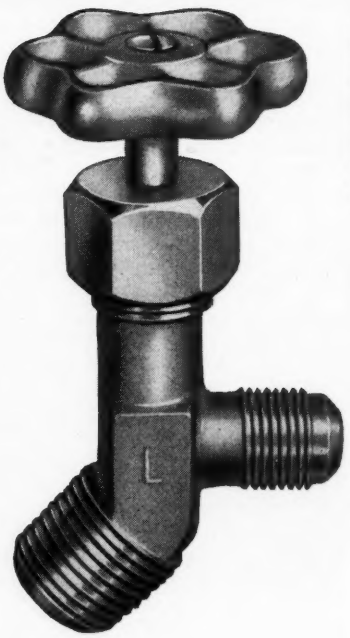
★ LINCOLN MASTERLINE ★

SERIES 5365

OIL TANK VALVE

(ANGLE TYPE)

Furnished in flared ⅜" or ½" outlet ends and ½" or ¾" tapered pipe thread inlet.



Write for further information

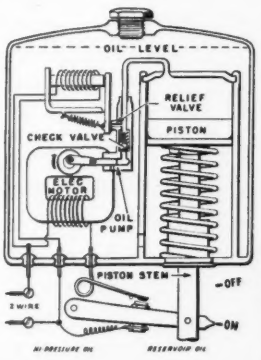
LINCOLN BRASS WORKS, INC.

2051 12TH STREET • DETROIT 16, MICH.

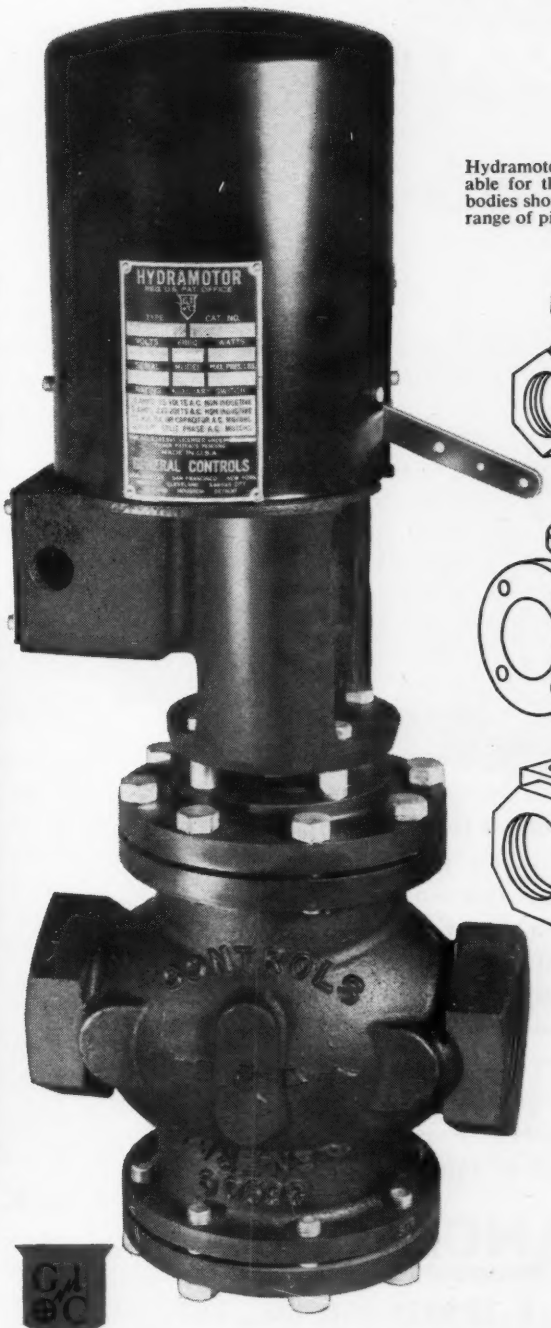
For better industrial heating control, use the

HYDRAMOTOR*

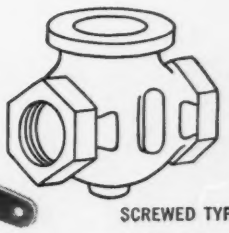
Featuring two-wire, positive, automatic shut-off in case of current failure, General Controls' Hydramotor* Valves perform dependably under all kinds of pressure, temperature and flow conditions. Lifetime-sealed in oil against dust, grit and weather, the Hydramotor operating mechanism applies electro-hydraulic power direct to the valve, thus eliminating the need for a complicated gear train. With only three moving parts, General Controls' Hydramotor* Valves require no lubrication or maintenance. For safe, economical, all-weather control of gases, oils, steam and heavy viscous liquids, the *best* valve is a General Controls Hydramotor.*



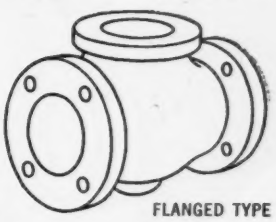
There are no gears in the Hydramotor* operator mechanism. A motor-driven hydraulic pump actuates a piston in a control cylinder, moving the main valve with maximum mechanical efficiency. Valve will handle line pressure up to 3000 psi.



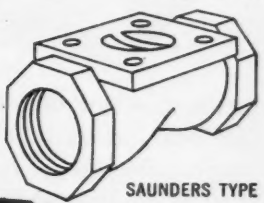
Hydramotor operators are available for the basic types of valve bodies shown below with complete range of pipe sizes from ⅜" to 6"



SCREWED TYPE



FLANGED TYPE



SAUNDERS TYPE

General Controls

G **series**

Hydramotor Valves

GENERAL CONTROLS

Glendale, California • Skokie, Illinois

Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls for Heating, Home Appliances, Refrigeration, Industrial and Aircraft Applications.

FACTORY BRANCHES IN 34 PRINCIPAL CITIES

See your classified telephone directory.

**Hydramotor is a registered tradename.*

Now is the Time for Smart Dealers to Sell

ANCHOR

Cash in on Anchor's great new line of oil heating equipment. You'll get *more* sales *easier* with Anchor. Customers appreciate the greater economy, the higher heat output. Anchor's Shell Combustion Head affords far greater efficiency than ordinary heads. Every single tiny oil droplet is completely consumed. *You* will enjoy less servicing and more repeat business.

Don't delay — get the Anchor franchise facts now! The Anchor Franchise is loaded with features that mean more profits for you.

ANCHOR DIVISION

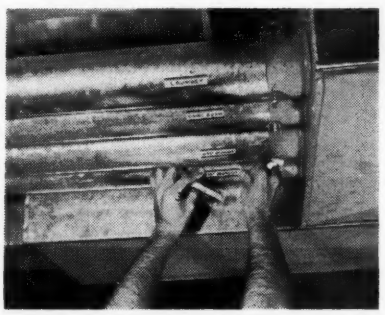
STRATTON & TERSTEGGE CO., INC.

P.O. BOX 311, NEW ALBANY, INDIANA

88th Year of Manufacturing the Best in Mid-West!

"Labelon" plastic Tape solves pipe and duct labeling Problems

"LABELON" plastic tape has been developed to solve the problem of labeling fueloil lines, steam or water lines and warm air ducts. The pressure-sensitive tape sticks without moistening to any smooth, dry and reasonably clean surfaces, including pipes insulated with asbestos. The illustration shows an application of the tape, used to identify warm air distribution ducts.



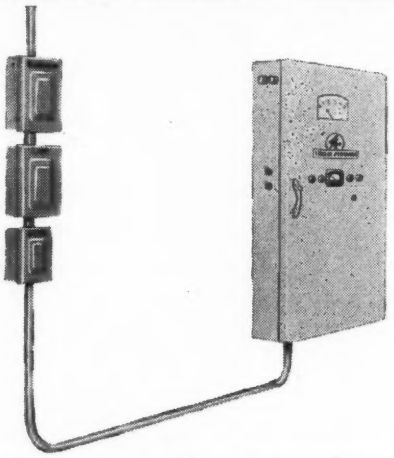
Labelon can be written on with a pencil, but a stylus is satisfactory and even a nail will do in a pinch. Pressure of the writing instrument alone causes the writing to appear beneath a protective outer coat of transparent plastic. It is this outer coast which protects the writing against smudging, oil, grease, water, most chemicals and dirt. Adhesive qualities are not affected by temperature changes between —40° and +150° F. Color combinations are available which permit a means of coding, if desired. Also, a variety of widths and lengths can be provided.

Made by: Labelon Tape Co., Inc., 450 Atlantic Ave., Rochester 9, N. Y.

Circle No. 10 on coupon

Iron Fireman standard control Panels for automatic Heating and power Uses

STANDARD ASSEMBLIES for the most frequently used types of controls and in custom-made assemblies are included in the new Iron Fireman control panels for automatic heating and power equipment. Standard controls are for 230-volt, 60-cycle current. Over-all dimensions are 36¼" by 28¼" by 5¾", with wall mounting simplified by knockout holes in the back of the panel. Heavy-gauge steel is used throughout. Door swings on a continuous-type hinge, fastened with a heavy-duty latch and equipped with a resilient door gasket for protection against moisture and dirt.



All controls, switches, instruments and gauges are mounted, wired and tested at the factory, with a terminal strip provided for field connections of external wires.

1ST CHOICE

ON THE FINEST OIL BURNERS

JEFFERSON TRANSFORMERS

- **CORE DESIGN** (Core and Coil) means cool operation. No charring of insulation which would result in breakdown.
- **EXTERNAL JUNCTION BOX** available. Three binding posts (two are internally connected to transformer primary) eliminate splicing and provide ample room for all wiring. Convenient knockouts provided.
- **CUSTOM DESIGN** makes perfect high quality installations. Never a misfit. Every Jefferson ignition transformer is the finest of its type.
- **TOPS FOR CONTINUOUS IGNITION.** Greater **quantity** and finest **quality** materials mean a very minimum of heat rise even in long, continuous ignition service.

1ST CHOICE on the Finest Oil Burners is undeniable proof of Jefferson Leadership in Ignition Transformers. For over 35 years Jefferson has worked intimately with oil burner engineers to produce the most advanced transformers to make oil heating successful, safe, and sure.

During these many years Jefferson has *always* paced ignition transformer development with outstanding improvements that have aided the growth of the oil heating industry. The Mid-Point Ground design and Radio Interference Barrier were patented Jefferson developments.

No skimping of steel and copper in a Jefferson Transformer, and special compound filling assures the most dependable operation, the best insulation, the lowest heat rise, and the greatest resistance to dampness.

These vital features have made Jefferson Transformers the choice of leading oil burner manufacturers. Their superior quality can be of value to you. Investigate now. There is no obligation.

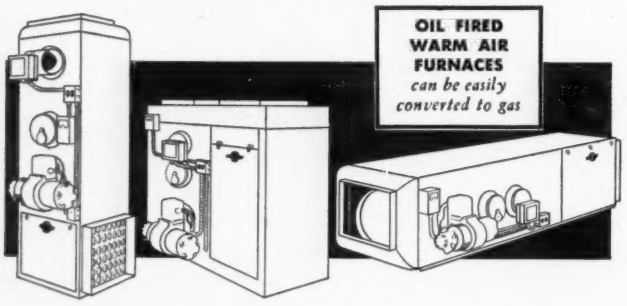
JEFFERSON ELECTRIC COMPANY
Bellwood, Illinois
In Canada: *Canadian Jefferson Electric Co., Ltd., 384 Pape Ave., Toronto, Ont.*

Jefferson JEFFERSON ELECTRIC **TRANSFORMERS**

YOU ALSO GET THE
BIG SIZES
in the BESSER line!

A COMPLETE RANGE OF SIZES . . .
from 75,000 BTU to 500,000 BTU

A COMPLETE LINE OF MODELS . . .
Horizontal • Vertical • Basement
Downflo • HiBoy • LoBoy • Suspended



Plus SPECIAL ORDER SERVICE
on any size unit UP TO 1,000,000 BTU

For jobs that require units larger than 500,000 B.T.U., Besser offers fast, reliable Special Order Service. We have the facilities to build any type unit required, up to 1,000,000 B.T.U. output. Every "special order" is built to the same high standards of the regular Besser line. Whatever your need, we can build it!

And now! A NEW PROFIT-MAKER JOINS THE BESSER LINE
Revolutionary
HORIZONTAL Summer AIR CONDITIONERS
for Residential or Commercial installations

Combining space-saving "horizontal" design with an entirely new cooling principle, Besser Summer Air Conditioners bring central air conditioning within the reach of almost everyone. Designed for installation and operation in conjunction with central heating systems, units are fully adaptable to either warm air or hot water heating. Greatly increased efficiency lowers initial and operating costs through use of smaller units.

Available in 2, 3 and 5-Ton units.

"Only the BEST goes into a BESSER!"

BESSER WARM AIR FURNACES
Summer AIR CONDITIONERS
The Complete Line for Year-Round Profits

BESSER METAL PRODUCTS CORP., P. O. BOX 4064, CHARLOTTE, N. C.

switch permits manual starting and stopping of the burner; a second switch holds the burner in low-fire position. Fuses are replaceable without opening the panel door and an indicating meter is available to show the operating condition of the electronic control system.

Made by: Iron Fireman Mfg. Co., 3085 West 106th St., Cleveland 11, Ohio.

Circle No. 11 on coupon

Super Model JS is low-priced, light-weight vacuum Cleaner

SUPER MODEL JS has been introduced to answer the demand for a small size, lightweight, yet powerful, heavy duty commercial vacuum cleaner. Powered by a 1½ hp motor, driving a 3-stage fan, the unit can be used with all standard and special Super tools and attachments.

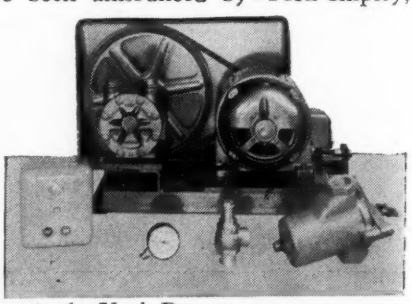
It is more readily portable than the conventional large power cleaners, is recommended for its heavy duty power, pick-up and performance in all dry suction cleaning and blowing operations. Super Model JS is constructed just like the big Super in every detail except size.

Made by: National Super Service Co., Inc., 1951 North 12th St., Toledo 2, Ohio.

Circle No. 12 on coupon

York announces fueloil pump Sets for use with industrial Burners

FOUR MODELS of York-Power fueloil pump sets for industrial oilburners have been announced by York-Shipley, for use with non-pump type burners and especially in installations where more than one burner is involved or where an auxiliary method of oil transportation is required. York-Power pump sets are viscous liquid pumps of the internal gear type. Each set is a complete self-contained unit mounted on a structural steel base, ready for immediate operation when fuel lines and electric service connections are made.



Available in the following capacities: 100, 225, 400 and 700 gph. Each set is shipped complete with a standard type base-mounted electric motor and equipped with a push-button type magnetic motor starter, strainer, pressure gauge, relief valve, and the necessary sheaves and belts.

Made by: York-Shipley, Inc., Industrial Div., York, Pa.

Circle No. 13 on coupon

It's a household word!...

MOBILHEAT

SOCONY-VACUUM HEATING OIL

Mobilheat

That's why it's so much easier to Sell a Branded Product!

It's only natural that you'll find it easier to boost fuel oil sales when you sell a branded product with such an excellent reputation . . . *Mobilheat!*

But more than that, with Mobilheat you get the benefit of 87 years of oil marketing and merchandising experience . . . plus plans and programs to help you meet and beat competition.

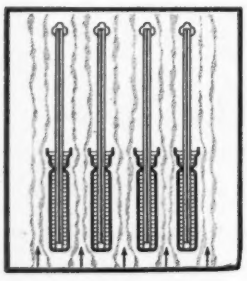
Get on this Brand Wagon

SOCONY-VACUUM OIL COMPANY, INC.

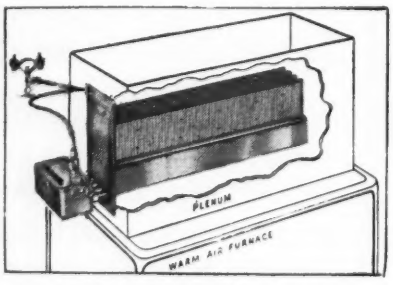
fueloil & oilheat

NO PLENUM too small for the Convector Humidifier

Look! No flat bottom to restrict warm air flow. Individual water troughs (only 3/8" thick) spaced 1" apart. Means 30% more evaporation area, 60% less plenum restriction. Perfect for small-plenum, short-cycle warm air furnaces . . . conventional, counterflow and year around air conditioning units. Made of copper and brass, nothing to corrode.



Warm air flows freely between evaporation pads, picks up 30% more moisture, isn't blocked.



To install, just cut opening in plenum and make connections. 13 sizes; capacities 1 to 10 gallons of water per day.

60% less air restriction in plenum **30%** more evaporation area **50%** less installation time

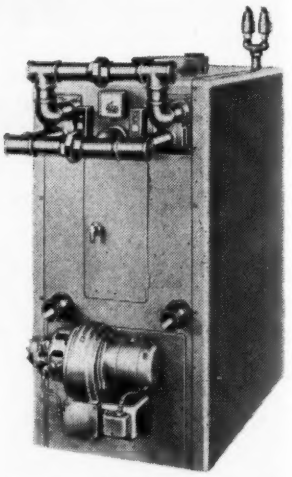
See your jobber or write

MAID-O'-MIST, Inc.
3217 NORTH PULASKI ROAD
CHICAGO 41, ILLINOIS

MAID-O-MIST Inc. HEATING SPECIALTIES

Bryan indirect water Heater uses Nest of removable copper Tubing

A NEW BRYAN indirect water heater makes use of copper tubes for both direct and indirect heating. Bryan uses its customary nest of removable tubes for primary heating, the tubes being positioned directly over the flame. The heated water rises in the boiler where a copper tube heat exchanger carries the secondary flow for heating to the lower of the two temperatures. Circulation is usually through the exchanger to a storage tank, although the boiler is supplied without the tank for certain applications. When a second and higher temperature is required the water is recirculated through a second heat exchanger.



The heater is made in eight sizes with outputs of 140,000 to 1,600,000. In gallons per hour, the capacities are from 268 to 3020 with a 60° temperature rise. For a 140° rise, gallonage is from 112 to 1300.

Made by: Bryan Steam Corp., Peru, Ind.

Circle No. 14 on coupon

Heat that last radiator

WITH THE WEATHER-FLO

the indoor-outdoor control that fits any job—*on the job*

It takes a long time to move water through the pipes when the circulator first starts. With frequent "start-stop" room thermostat operation, all of the "hot" water of the boiler is used up long before it reaches that last, hard to heat, radiator—the nearest radiators get the hottest water. Circulation through the radiator with the "greatest resistance" is always slow to start and quick to stop.

***With the Weather-Flo,* the temperature of water reaching the *farthest* radiator is always within a degree or two of that at the *first* radiator because circulation never stops. With constant flow, the need for starting the water in motion is eliminated, and a constant circulation of warmed water through even the most sluggish radiator in the system is assured.**

Write today for complete information. Bulletin F-453

AUTOMATIC DEVICES CO., INC.
WESTERN SPRINGS, ILLINOIS

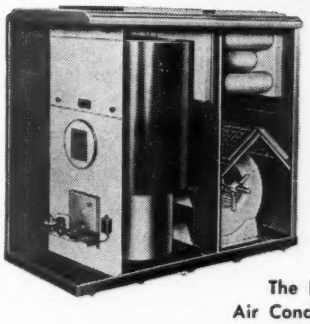
No "Choice-of-Fuel" Problems

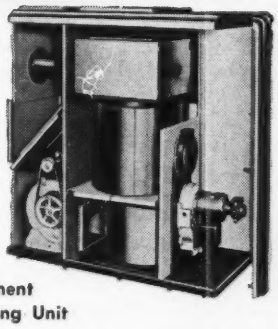
with

Luxaire®

BASEMENT AIR CONDITIONING UNITS
UTILITY AIR CONDITIONING UNITS
GRAVITY FURNACES • COUNTERFLOW UNITS

Approved for either GAS or OIL with equal efficiency





A size for any installation

The Basement
Air Conditioning Unit

As a gas-fired unit 70,000 to 250,000 B.T.U. Input

As an oil fired unit 76,000 to 212,000 B.T.U. Bonnet

Luxaire dealers have the BIG answers to the BIG questions — "What's the fuel situation going to be" with the Luxaire Approved for Gas — Approved for Oil furnace line.

With Luxaire you have no choice-of-fuel problems! You have heating equipment so ingeniously designed so as to be approved for either gas or oil firing which provides the same satisfactory heating results with either fuel.

With Luxaire you can install the furnace NOW and decide on the type of fuel later! Also it is a quick, simple operation to convert from one fuel to the other at any time by simply changing burners.

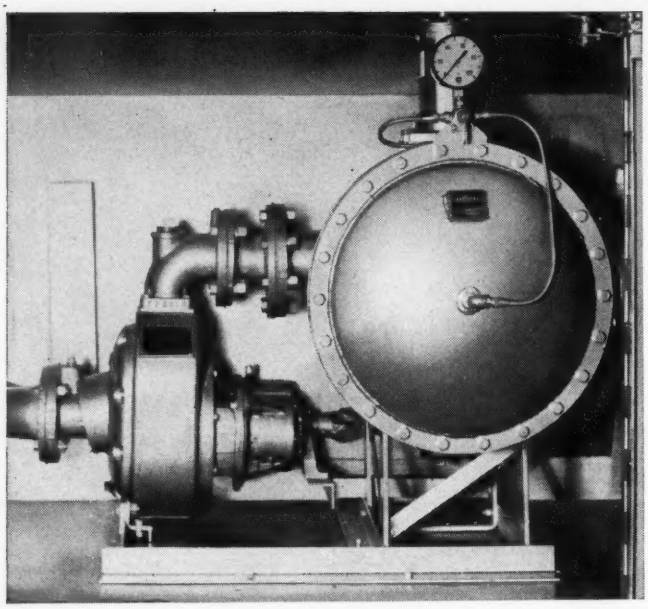
See your Luxaire jobber NOW! Get the complete "one furnace for all automatic heating" story. Get the new low prices on Luxaire.

ALSO: Horizontal Gas Furnaces . . . Horizontal Oil Furnaces . . . Coal Fired Furnaces, steel or cast iron . . . Unit Heaters . . . Blower Filter Units . . . Fuel Oil Tanks . . . Incinerators . . . Year 'Round — Heats in winter, cools in summer — and Summer Air Conditioning Units.

THE C. A. OLSEN MANUFACTURING COMPANY • • ELYRIA, OHIO

THE Luxaire® HEATING & AIR CONDITIONING UNITS

Fueloil & oilheat



A typical high-flow Purolator Filter installation as used in handling light bulk fuels. The tank at the right contains 24 Purolator Micronic filter elements which remove particles *sub-microns* small (.0000039 in.)

PurOlator Filters

for bulk fuel handling

. . . your best way to cut meter maintenance costs

When dirt-clogged meters put your tanks or trucks on the "down list," you lose in *two* ways. Your investment is tied up. And your service suffers.

A sure way to reduce such losses is to install Purolator* Filters on *every* truck . . . at *every* platform outlet. Purolator Filters, with famous Micronic* elements, remove particles as small as .0000039 in., have up to *12 times* the filtering area and dirt storage capacity of old-style filters . . . take up *less* space, for the same flow capacity.

Take the first step towards more trouble-free operation by sending for the new Purolator Industrial Catalog No. 1053, describing filter units with flow capacities of 15 to 1500 g.p.m.

NEW! Purolator PF 2002 Oil Burner Filter and PF 200 Refill. Write for information today.

*Reg. U. S. Pat. Off.

PUROLATOR PRODUCTS, INC., Rahway, New Jersey and Toronto, Ontario, Canada.
Factory Branch Offices: Chicago, Detroit, Los Angeles.

PUROLATOR
WORLD'S FINEST OIL FILTER

Sealtite electrical Conduit is flexible and liquid-tight

"SEALTITE" flexible electrical conduit type UA is the first of its kind to gain Underwriters' Laboratories approval for use in wet locations. The tough, extruded synthetic covering over Sealtite Type UA's flexible metal core protects wiring against moisture, oil, dirt, chemicals, and corrosive fumes—on permanent and temporary installations. The conduit is made of spirally wound, interlocked zinc-plated steel strip with a copper bonding conductor wound spirally in the space between each convolution on the inside of the conduit.

Light and flexible, Sealtite Type UA can be cut to required lengths—bends easily. Underwriters' Approved fittings for use with Sealtite Type UA are readily available. Where space is cramped and hard to get at, Sealtite Type UA is easy to install. Available in long lengths in nominal electrical ID sizes ⅜" to 1¼" inclusive.

Made by: The American Brass Co., 692 Main St., Waterbury, Conn.

Circle No. 16 on coupon

Sid Harvey announces Device to drain waterlogged expansion Tanks

A SIMPLE, low cost device for draining expansion tanks has been developed by Sid Harvey, Inc. It consists of a brass casting with ½" male pipe threads on one end and ½" female threads on the other for the drain cock. Inside the casting is a length of copper tube leading from the air inlet fitting to the top of the expansion tank.

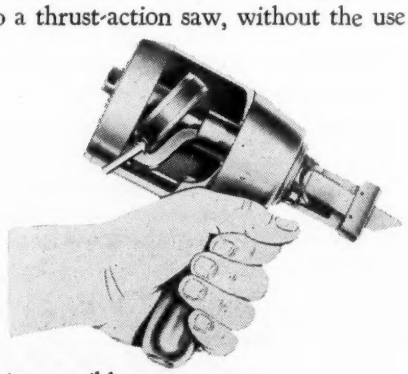
When the drain cock and the air inlet are opened, air goes in the tank and water drains out. The expansion tank drainer is simple to install in either old or new systems.

Made by: Sid Harvey, Inc., Valley Stream, N. Y.

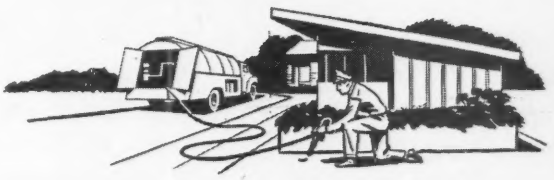
Circle No. 17 on coupon

E-Z Way Attachment converts Drill to thrust-action Saw

E-Z CAM-ACTION saw attachment converts the rotary power of an electric drill to a thrust-action saw, without the use of gears. Precision-built of cast aluminum and special alloy steel, the attachment weighs only 3½ lbs. and features an adjustable guide handle that permits work to be done in normally inaccessible spots.



cut costs with SMITHway slow closing set stop valves!



Truck Tank Service – Simple as 1-2-3 to make More Deliveries per Day. (1) The tank truck driver can pre-set the exact amount of oil to be delivered, (2) leave the truck and attend to the delivery himself at a distance of many yards. The delivery is measured and controlled directly on the truck meter and (3) the ticket printer provides a printed record of the transaction for both the customer and home office.

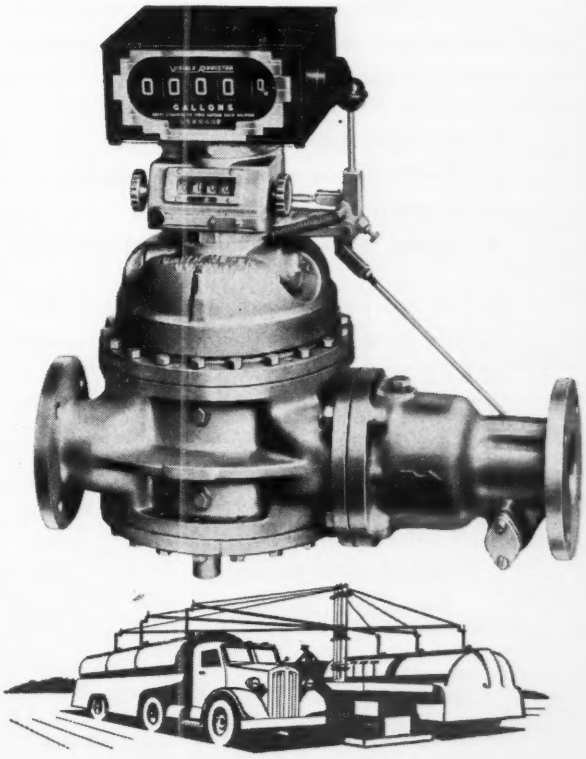
You can cut costs with SMITHway *Slow-Closing* Set Stop Valves and Counters, get *more service* from existing equipment and lighten the work, *increase the efficiency* of your personnel by using these *work-saving functional* accessories. A. O. Smith offers the industry's most complete line with models to suit every rate of flow. *This equipment can be added readily to existing Smith Meters.* See nearest representative or write for complete information. A. O. Smith Corporation, Meter Division, 5715 SMITHway St., Los Angeles 22, California.

79th YEAR 1874 · 1953

A.O.Smith

METER DIVISION

FACTORIES: 5715 SMITHWAY STREET, LOS ANGELES 22, CALIF. P. O. BOX 500, SUCCASUNNA, N. J.
Offices: Atlanta, Chicago 7, Houston 20, Los Angeles 22, New York 17
Canada: Toronto 12, Vancouver 1. International Div. — Milwaukee 1, Wis.



Bulk Plants and Terminals – SMITHway Set Stop Valves make it possible to load two or more compartments or two or more trucks simultaneously. Shut off varied from instantaneous stoppage for low flow rates to slow closing for high flow rates. Various slow closing cycles of 10 to 30 units, depending on requirements. SMITHway Slow-Closing valves also permit exact blending right at the loading rack when necessary.

CONVERSION JOB *Tips*

Lower Oil Bills for your customers

Higher Profits for You

"What will it cost me for oil?"

Here's one question every homeowner asks when considering a conversion job.

If you have included a B&W Insulating Firebrick Firebox in your estimate, you can offer this benefit to your prospects:

Fuel savings of up to 25% have been made by homeowners who replaced inferior fireboxes with one made of B&W Insulating Firebrick—*the lightest weight brick of its type made today.*

This lightest weight refractory, combined with proper size and shape of firebox, assures your customers of:

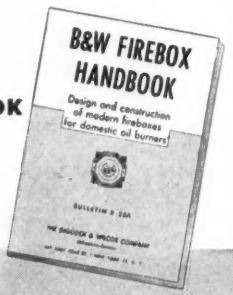
1. ***Fuel savings***
2. ***Practically no odor, soot or smoke***
3. ***Smoother, quieter burning***
4. ***Instant response to thermostat demands***

Follow this lead to increased sales and profits—by showing your customers the benefits of B&W Fireboxes.

Send today for the

B&W FIREBOX HANDBOOK

a valuable guide for every installer



THE BABCOCK & WILCOX CO.

REFRACTORIES DIVISION

General Offices: 161 East 42nd St., New York 17, N.Y.

Works: Augusta, Ga.

R-484

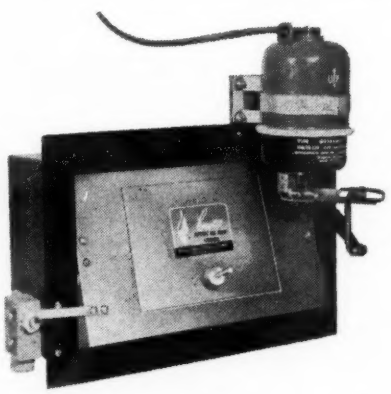
The tool can be attached directly to any heavy duty electric drill, with each revolution of the power drill being turned into a 7/8" stroke by the cam action of the saw. Adaptable for cutting almost any material, the attachment uses specially-designed blades that make starting holes unnecessary. Its universal chuck also permits the use of any make hack or key-hole saw blade.

Made by: E-Z Way Tool Co., Barington, Ill.

Circle No. 18 on coupon

Campbell electric draft Control for residential, commercial Use

NEW MODELS of the Campbell electric draft control are suitable for residential and small commercial applications. The control actually consists of two damper openings. A smaller damper operates barometrically when the burner is firing, much in the same manner of conventional draft control equipment.



When the heating plant shuts off, a larger electrically-operated draft gate takes over and automatically moves to a full open position, by-passing about 80% of the chimney pull. Thus, at the point of peak heat, the chimney is forced to make most of its pull from the room, rather than from the combustion chamber of the heating plant.

Made by: Fuel Reduction Corp., 220 N. Ada St., Chicago 7, Ill.

Circle No. 19 on coupon

Kunkle introduces Valves for hot water Supply and Heating

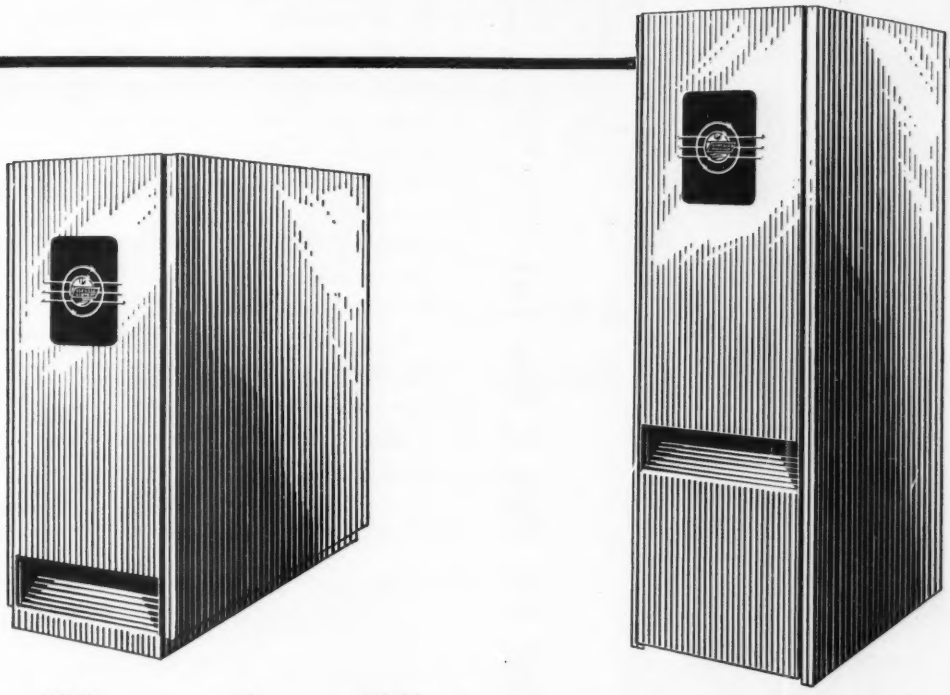
ENTRANCE into the domestic and commercial field has been announced by Kunkle Valve with the introduction of a line of 3/4", 1" and 1 1/2" hot water supply and heating boiler valves. ASME approved and NB certified, Fig. 137 valves are rated at .9 actual capacities from 598,000 to 9,375,000 Btu/hr at set pressures from 30 to 160 psig. These valves are for use on hot water heating boilers and water storage tanks.

Figs. 41 and 42 are rated for capacities up to 700,000 Btu/hr at 125 lbs. and are furnished with or without fuse plug or test lever. These are AGA approved pressure relief valves and pressure-temperature relief valves for domestic hot water supply. Technical bulletin 137-41 covers all types.

Made by: Kunkle Valve Co., 121 S. Clinton St., Fort Wayne 2, Ind.

Circle No. 20 on coupon

These Modern Features...



make Chrysler Airtemp easier to sell!

Guaranteed by Good Housekeeping

Comfort Zone

When you sell Chrysler Airtemp furnaces you offer features that APPEAL to prospects . . . features that mean years of trouble-free heating. Yet you . . . and your prospects . . . pay no premium for these quality advantages.

- **8-Year Warranty** . . . For extra customer protection, all newly-designed heat exchangers carry an 8-year warranty!
- **Complete Convertibility** . . . New furnace models easily convert from gas to oil or oil to gas . . . yet maintain same BTU output. Ideal where specific fuels are uncertain. You carry lower inventories, too!
- **Bonderized Cabinets** . . . For full rust protection . . . longer life . . . lower maintenance . . . the all-steel cabinets are completely bonderized!
- **Space-Saving Design** . . . Easily installed in closet, utility room or basement . . . passes through standard door openings even when crated!

Get all the facts on nationally advertised Chrysler Airtemp furnaces today. See how YOU can make EXTRA profits by selling summer cooling with these modern furnaces. Mail coupon for complete information on this valuable franchise today!

Chrysler Airtemp

HEATING • AIR CONDITIONING
FOR HOME, BUSINESS, INDUSTRY

AIRTEMP DIVISION OF CHRYSLER CORPORATION
DAYTON 1, OHIO

fueloil & oilheat

Airtemp Division of Chrysler Corporation F&OH-9-53
P.O. Box 1037, Dayton 1, Ohio

I would like to know more about the Chrysler Airtemp proposition.

Name_____

Address_____

City_____ Zone_____ State_____

here's what you've been looking for . . . more profits with this International Economy horizontal furnace

Shown here is the smallest size, Model OS-80E. These oil units carry our famous TEN-YEAR WARRANTY on heating element and casing!

Oil and gas models available in space-saving designs with wide installation flexibility

Call your International Economy distributor today . . . there's **extra** profits for you in these new horizontal furnaces which can be installed almost anyplace—basement, utility room, attic, even crawl space under homes! It's tomorrow's furnace for your sales today.

- Shipped factory-assembled
- Oil sizes—84,000, 112,000, 168,000 Btu output
- Gas sizes—AGA input—rating of 60,000, 80,000, 100,000 Btu's
- Alternate filter positions
- Beautiful smooth-enameled cabinets

NEW

International Heater Company, Dept. F-5, Utica 2, New York Western Warehouse—Chicago, Illinois
111 years of heating experience at your service

Dualseal, fueloil fill pipe Terminal prevents Flow-Backs

DUALSEAL, fueloil fill pipe terminal available in 2, 3, 4 and 6 in. sizes, prevents flow-backs where the top of a storage tank is higher than the level of the fill terminal. It represents a saving to the installer by eliminating the necessity for building a manhole and equipping it with a cover, installing check valve, fill box, fittings and other materials. Dualseal is approved for use in New York City.

An aperture is provided in the unit to receive tell-tale line from invisible vent line, as required under New York City Oilburner Rules.

Made by: Arvins Viscolator Corp., 123 DeKalb Ave., Brooklyn 1, N. Y.

Circle No. 21 on coupon

Perfection Model F-605 furnace Unit adaptable to summer Airconditioning

PERFECTION's model F-605 oilfired furnace unit, a "Lo-Hi-Boy" model for basement or utility room installation, becomes a year-'round airconditioner with the addition of Perfection's summer airconditioning unit. The summer unit is a self-contained product, designed as a companion piece for this furnace, and, like the furnace, is finished in white enamel or silvertone brown.

All controls of the F-605, which has a 90,000 Btu output at the bonnet, are factory-installed, with the return air connection capable of being located at the left or right sides or at the bottom. The pressure atomizing burner which fires the unit floats on sound-absorbing rubber cushions. Blower also is suspended on rubber mounts. Controls may be serviced from the front and the combustion chamber is removable without disturbing the furnace installation. The entire blower assembly is affixed to built-in tracks so that it can be slid forward and out.

Made by: Perfection Stove Co., 7609 Platt Ave., Cleveland 4, Ohio.

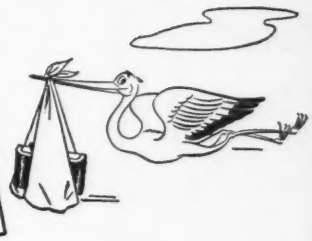
Circle No. 22 on coupon

Flexible duct Liner made with Fiberglas Insulation

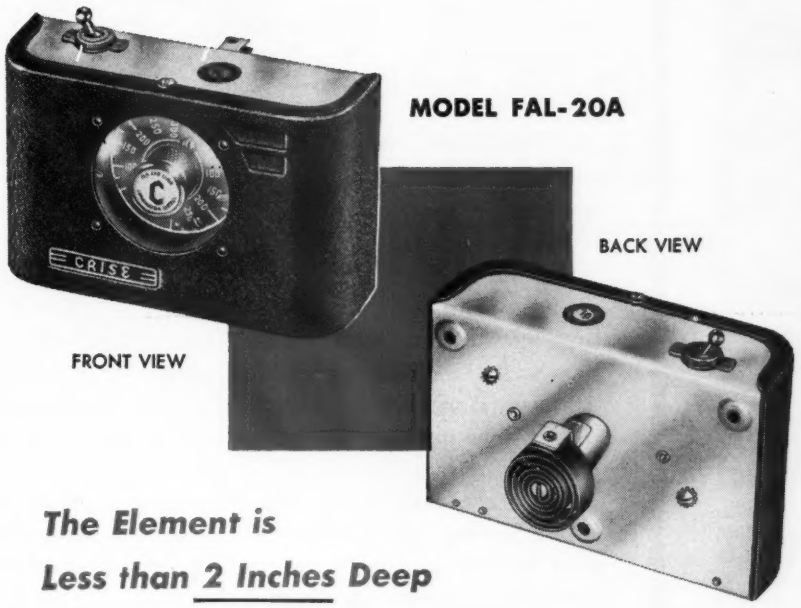
FLEXIBLE DUCT LINER is a Fiberglas insulating product for lining the interior or airconditioning or heating ducts. It has a high noise reduction efficiency and has good thermal insulating properties. When used inside ducts it allows

Announcing

An Important Addition to The Family of CRISE CONTROLS



A *NEW* BIMETAL Combination Fan and Limit Control with Summer Switch



The Element is Less than 2 Inches Deep

Does the length of the helix element on conventional fan and limit controls pose a problem for you? Then take a close look at this new *thin* Crise Model FAL-20A, made with a "watchspring" type bimetal element. *This element is less than 2-inches deep.* You can easily slip one of these into a minimum area between your control panel and heat exchanger. You'll have a cleaner looking, more compact design. You'll gain in performance, too, for this spiral bimetal element has proved to be extremely positive, fast acting, and durable.

Already, thousands of Crise FAL-20A fan and limit controls are giving superior service on leading makes of furnaces. Increased production facilities now make this announcement possible. Furnace manufacturers are invited to ask for samples and quotations. Write, wire or phone today.

CRISE CONTROLS DIVISION

ACRO MANUFACTURING COMPANY

COLUMBUS 16, OHIO

No Greater Value Ever Than These Complete* Fuel Oil Trucks!

IMMEDIATE DELIVERY ANYWHERE in the U. S. A. - Trades accepted - Terms arranged

1000 GALLON — 2 compartment tank; fully skirted, top shrouding; 1½" ticket printer (your choice); 125' 1¼" hose and electric reel; 1953 Dodge 1½ ton with 7:50 x 20 8 ply tires; complete $4,078.00
1300 GALLON — 2 compartment tank; equipped same as above; 1953 Dodge 2 ton with 8:25 x 20 10 ply tires, complete $4,488.00
1600 GALLON — 2 compartment tank; equipped same as above; 1953 Dodge 2½ ton with 9:00 x 20 10 ply tires; complete $5,286.00

1750 GALLON — 2 compartment tank; equipped same as above; 1953 Dodge 2½ ton with 9:00 x 20 10 ply tires; 19000 lb. G.V.W. chassis; complete $5,478.00
2100 GALLON — 2 compartment tank; equipped with 2" ticket printing meter (your choice); 125' 1¼" hose and electric or "Fluid Drive" reel; 1953 Dodge 3 ton with 10:00 x 20 12 ply tires; complete $6,882.00
2450 GALLON — 2 compartment tank; equipped same as above; with 100% air brakes; 1953 Dodge 3½ ton with 11:00 x 20 12 ply tires; complete $7,916.00
3300 GALLON — 1953 Dodge 4 ton; specifications on request; complete $11,890.00
REAR INSTALLED EQUIPMENT and VARIATIONS IN BASIC SPECIFICATIONS AVAILABLE IN ALL SIZES. OTHER TANK SIZES, PRICES ON REQUEST. Prices include all federal taxes. Consideration given to state and local requirements.

* *Includes chassis, tank, pumping and metering equipment*

Decker Brothers

Send for FREE Catalog FO

300 Lincoln Avenue
HAWTHORNE N. J.
Hawthorne 7-2100-2101-2102

the metal surface to act as a vapor barrier.

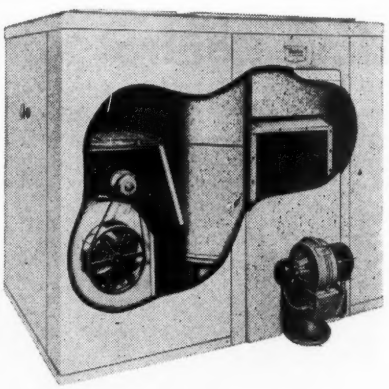
Because it is flexible, the liner may be installed on metal sheets before they are bent to form ducts. It is cut to size, affixed to the unformed sheets, which then are fabricated in a sheet metal brake to produce a duct with the liner already installed. The insulation is sprayed with a light coating of fire-safe neoprene.

Made by: Owens-Corning Fiberglas Corp., Toledo 1, Ohio.

Circle No. 23 on coupon

Thatcher adds two Series of oilfired winter airconditioning furnace Units

THE NEW THATCHER 533 Series oilfired winter airconditioner (illustrated) is available in three sizes: 210,000, 250,000 and 330,000 Btu at register. Design features include an easy-to-assemble slip-joint casing with round corners, a cylindrical inner casing that assures positive air passage over the entire heat exchanger and a large filtering area. Increased heat transfer is provided by an oversized radiator with welded seams for permanent tightness. Flexibility to suit particular needs allows the blower to be placed on either the right or left side of the heating element.



Specifically designed to meet the requirements of perimeter heating, the Thatcher 523 Series counterflow oilfired Hi-Boy winter airconditioner is factory assembled for quicker installations. Front flue permits easy access to controls. Front radiator cleanout and blower compartment door offers accessibility for cleaning, servicing and inspection. Engineered for low stack temperatures, the heavy gauge steel body and radiator of the Thatcher 523 assures long life and efficient heat transfer. Ample filtering area is provided.

Made by: Thatcher Furnace Co., Garwood, N. J.

Circle No. 24 on coupon

Draco Fireball floor Furnace equipped with heat Tubes

DRACO oilfired floor furnaces are completely wired mechanical draft units, shipped completely assembled, wired and ready to operate by attaching to an electrical circuit and connecting the low voltage thermostat. A feature is a series of "activated" heat tubes, through which air is forced from the bottom of the unit and through the hot gases generated in the combustion chamber. Purpose of the tubes is to insure positive circulation of heated air.

YOU'LL GET MORE BUSINESS WITH AN INHIBITED FURNACE OIL

Add NEW Dispersant FO
(FURNACE OIL INHIBITOR)
to your heating oil!

Reduces, even ends filter screen and nozzle deposits

Inhibits rust in storage tanks and lines

Eliminates many costly home service calls

Easy to add at any temperature—in storage or truck tank

Economical—1 pint/1000 gallons of oil stock

Here's a way to beat the competition in your selling area. With new liquid Dispersant FO in your home heating stock, consumers will prefer your product, and your service calls will be greatly reduced. Oronite's new Furnace Oil Additive will keep home heating systems clean and trouble free by checking the formation of screen-clogging gums and by inhibiting rust and corrosion in tanks and pipes.

Dispersant FO is easily added to your storage tank or when filling your truck tank. It is also economical to use—just 1 pint to every 1000 gallons of burner stock.

Write or phone the Oronite office nearest you for complete information

ORONITE CHEMICAL COMPANY

38 SANSOME STREET, SAN FRANCISCO 4, CALIFORNIA
30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK
STANDARD OIL BLDG., LOS ANGELES 15, CALIFORNIA
600 S. MICHIGAN AVENUE, CHICAGO 5, ILLINOIS
MERCANTILE SECURITIES BUILDING, DALLAS 1, TEXAS

ORONITE CHEMICAL COMPANY
THE NAME TO WATCH IN CHEMICALS
®

2636

Make Customers and Influence Profits with HEAT-TIMER

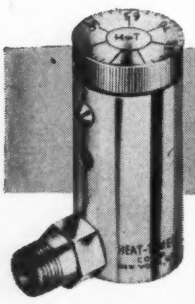
guaranteed controls and valves

They have no competition

The Heat-Timer Control takes the guesswork out of heating installations

HEAT-TIMER CONTROL

automatically times heat supply to weather, makes possible up to 40% fuel savings; has other important efficiency and economy features. No other control **at any price** offers equal benefits. Installations sell for you. Owners recommend Heat-Timers; managing agents install them in all their buildings. You build for customer satisfaction and increased profits with every Heat-Timer Control that's sold.



Heat-Timer Valves take the "bugs" out of hard-to-balance 1-pipe steam systems

precision-made; long-life; brass, chromeplated.

HEAT-TIMER THERMOVALVE automatically maintains accurate temperatures, room by room. Has built-in dial thermostat. Does not interfere with existing controls. Angle or straight shank. **List $3.95**

HEAT-TIMER VARIVALVE gets heat fast to those hard-to-heat rooms, mains and risers. Venting orifice, variable 0" to 5/16". Angle or straight shank. **List $3.45**

HEAT-TIMER CORP'N

657 Broadway, New York 12, AL 4-5380

Mfrs. of HEAT-TIMER Electronic Controls, Thermovalves, Varivalves, Motorized Valves; Smoke-Eye Smoke Alarm; Fire-Chief Fire Alarm and other outstanding products.

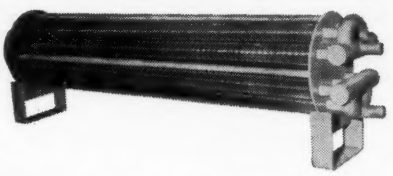
Model HP 80 has a maximum output of 95,000 Btu/hr and requires a 36½" floor opening, 24½" wide and 34½" deep. Overall height of the furnace is 36". Model M-151 produces 50,000 Btu/hr and measures 36" wide, 24" deep, 30" high. Only 28½" depth under the floor is required for installation.

Made by: Draco Furnace Co., Charlotte, N. C.

Circle No. 25 on coupon

Cal-Fin tank Heaters available in a Choice of twelve Sizes

HORIZONTAL CAL-FIN tank heaters feature the use of helically wound serrated fins which combat laminar flow, made possible by the development of finning equipment capable of helically winding and continuously welding serrated stainless or carbon steel fins to stainless or carbon steel tubes.



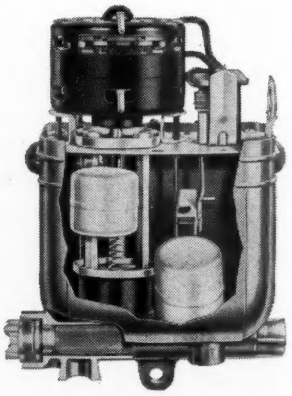
Series IH heaters are designed for complete submergence in the fluid to be heated and are suggested when more than one heater is required in one tank. Series MH heaters are designed for installation in a manhole. With their wide tube spacing and high performance fin surface the new heaters require approximately one-eighth as much tubing length as is usually required in plain tube heaters or internal pipe coils. A choice of 12 sizes is available.

Made by: Drayer-Hanson, Inc., 3301 Medford St., Los Angeles, Calif.

Circle No. 26 on coupon

New Oilifter converts Appliances to completely antomatic Operation

MODEL 346 Oilifter converts any oilburning appliance using a vaporizing burner to completely automatic operation. The Oilifter provides a constant supply of oil from an outside tank, or from a tank located in the basement. It will lift oil from a basement tank to a heater or other device located on the third floor of a building.

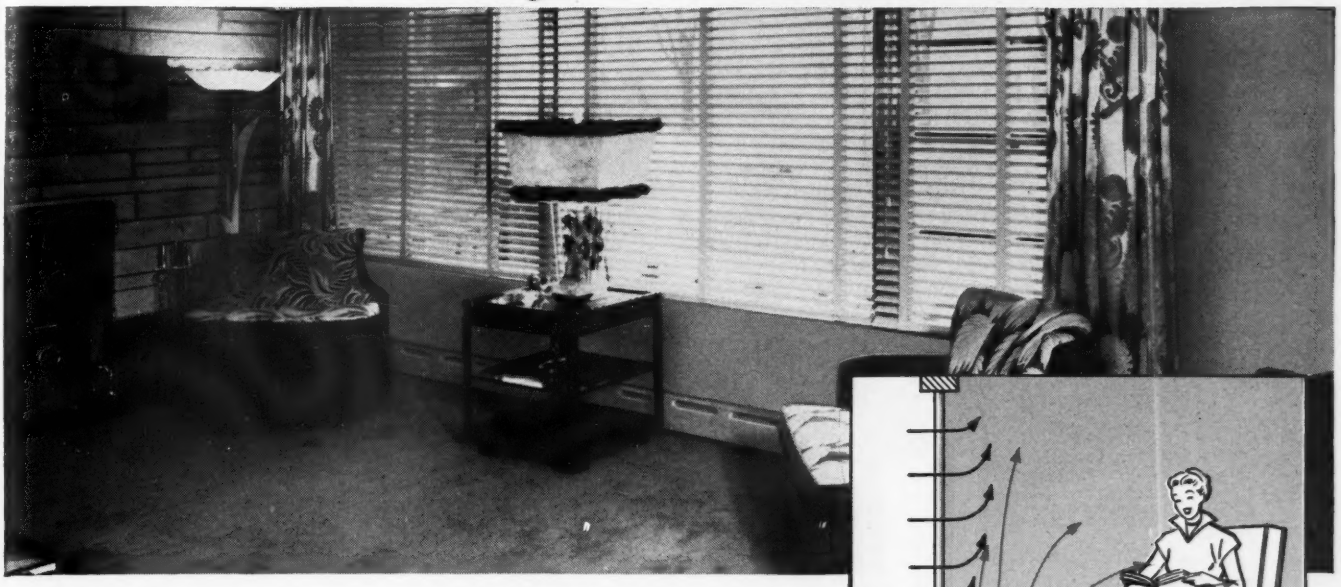


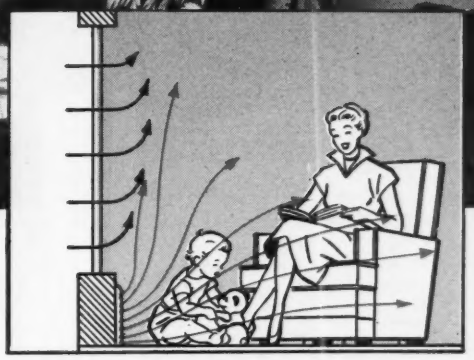
An extra safety float acts as a check on the normal operating float, and eliminates all danger of overflowing of oil from the pump chamber. If the main oil tank should ever become empty, or if a leak should develop in the oil line to the burner, an automatic safety switch shuts off the Oilifter motor. No overflow pipe is necessary, and a single ¼" copper line takes care of the connection between tank and Oilifter. A large-area strainer, of 100-mesh monel screen, is built into the Oilifter to prevent entrance of dirt and foreign matter.

The unit may be used for any system requiring an oil-

Today's home builders demand both

Comfort and Beauty





B & G *Hydro-Flo*® Heating

with baseboards or radiant panels provides overall sunny warmth . . . permits full decorative freedom

All space livable—no cold drafts

Homes with large glass areas present a special heating problem—easily solved with *radiant* B & G *Hydro-Flo* Heating. This forced hot water system permits proper placement of the heating units to protect against icy downdrafts from the windows and to keep floors warm.

B & G *Hydro-Flo* Heating provides not only a better *quality* of heat but better *controlled* heat as well. Every change in the weather is automatically met with a corresponding change in the heat supply. No fuel-wasting overheating—but always plenty of heat when the thermometer hits bottom.

Any hot water heating boiler can be equipped with B & G *Hydro-Flo* units —1. Booster Circulating Pump. 2. Flo-Control Valve. 3. Indirect Water

All year 'round domestic hot water

An abundant supply of domestic hot water is a genuine necessity in the modern home. The Water Heater of a *Hydro-Flo* System provides an ever-ready supply, 24 hours a day, winter and summer... at amazingly low cost. Plenty for automatic washers, bath, showers and every household use.

Snow melting an optional feature

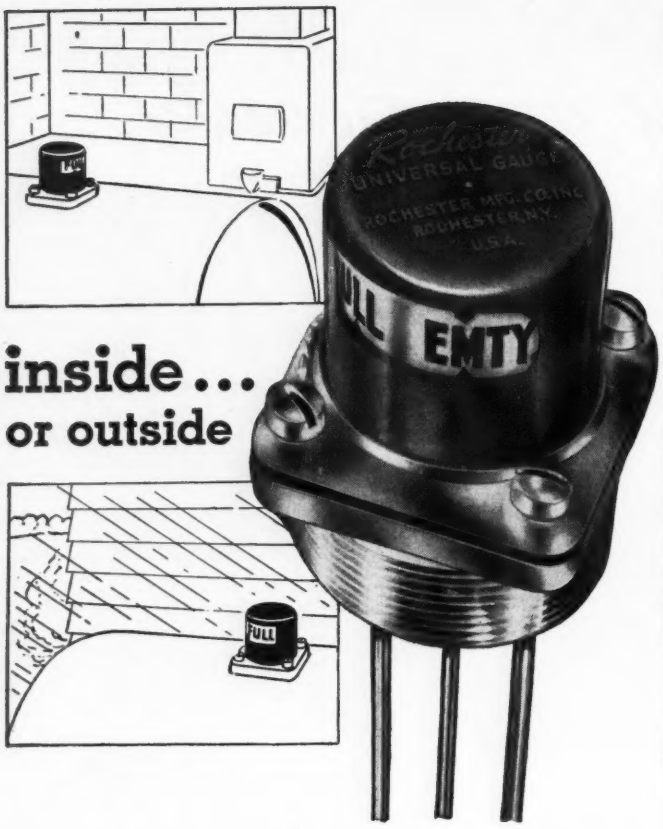
Pipe coils can be installed under the sidewalks and circulated with hot water from a heat exchanger connected to the boiler. Snow is melted as fast as it falls . . . ending a back-breaking job. A snow melting installation can be made when the original heating system is installed or at any time thereafter.

BELL & GOSSETT COMPANY

Dept. DC-7, Morton Grove, Illinois

Canadian Licensee: S. A. Armstrong Ltd., 1400 O'Connor Drive, Toronto

fueloil & oilheat



Rochester UNIVERSAL®
oil tank gauge saves you money
on ALL installations

STOCK ONLY ONE GAUGE! It's weatherproof . . . ideal for both indoor and outdoor service. Newly improved construction provides long, trouble-free operation. Saves you money two ways: in reduced inventory, and in lower maintenance costs.

ELIMINATE NUISANCE CALLS. New type plastic head is hermetically sealed . . . makes it absolutely leakproof, dustproof and shockproof. Pressure-tight, too.

NO FUMES OR SEEPAGE. There are no holes in the ROCHESTER UNIVERSAL Oil Tank Gauge. A permanent magnet transmits float-arm action from tank to indicator.

EASY-TO-READ "DUAL-DIAL" saves time and effort in checking and filling tanks.

EASY TO INSTALL and stocked by leading wholesalers everywhere for all standard oil burner storage tanks. Underwriters' approved. Rochester Manufacturing Co., Inc., 8 Rockwood Street, Rochester 10, N. Y.

OHIO

Rochester
MANUFACTURING COMPANY, INC.
DIAL THERMOMETERS GAUGES AMMETERS

ROCHESTER DEPENDABLE ACCURACY GAUGES

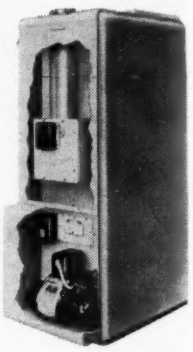
lifting capacity up to 4 gph at 15-foot lift, or 3 gph at 25-foot lift.

Made by: A-P Controls Corp., 2458 No. 32nd St., Milwaukee 45, Wisc.

Circle No. 27 on coupon

Bryant adds two Furnaces to its Line of oilfired Units

BRYANT'S new oil forced air furnaces, Models 314 and 315, are compactly styled to permit quick, simple installation in almost any part of the home. Engineered primarily for perimeter heating applications in basementless homes, Bryant Model 314 (illustrated) is a down-flow type, featuring the warm air outlet at the bottom of the unit and the return air inlet at the top. Model 315 is the vertical type, listed for basement, utility room or closet applications. It utilizes a pressure atomizing type burner that operates within an insulating brick combustion chamber. Available in six capacities from 75,000 to 144,000 Btu's per hour, both new Bryant heaters are serviced from the front side only.



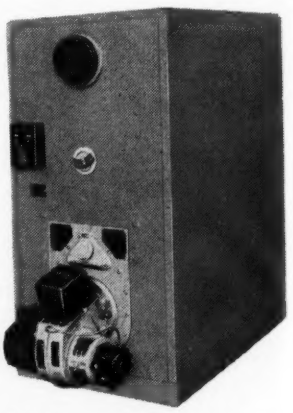
An optional oilburner enclosure is available for either model. A side filter rack is provided as standard equipment on Model 315, with a bottom rack built into the unit that can be used if necessary. Model 314 features the filter in the top of the unit. All Bryant models are completely wired and preassembled at the factory, requiring only attachment of burners and controls and making of necessary connections for installation.

Made by: Bryant Heater Div., 17825 St. Clair Ave., Cleveland 10, Ohio.

Circle No. 28 on coupon

Mor-Sun MLB Series furnace Units are low boy Models for small Homes

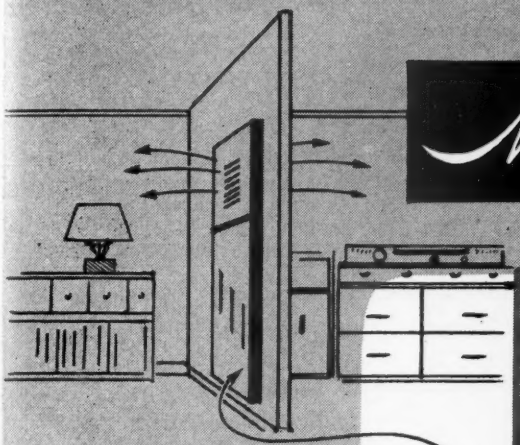
MOR-SUN MLB series low boy warm air furnaces have been designed to provide a compact, budget-priced heating unit for small-family homes and feature aluminum foil, fiber glass cabinet insulation, quiet and powerful blower, simplified construction, compact size of 46" high by 22¼" wide and 35" deep. The units are interchangeable for gas or oil.



Like other Mor-Sun furnaces, the MLB series feature precision die stamped heat exchangers, made from heavy sheet steel with electronically-welded seams. Heat generated by the burner goes directly into the heat exchanger and circulates throughout its interior. Increased exterior sur-

...IT OUT-PERFORMS COMPETITION

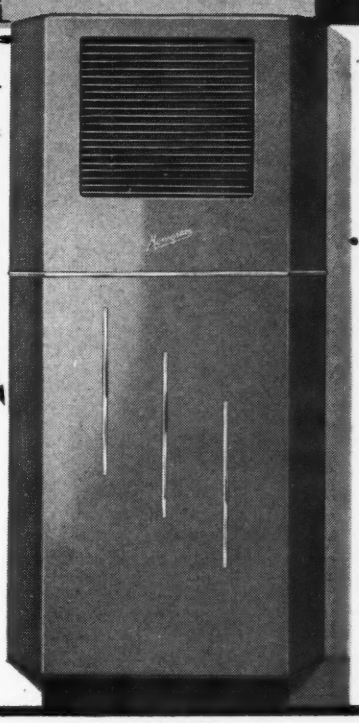
...IT MEANS EXTRA PROFITS for YOU BECAUSE IT SELLS!



Monogram

OIL WALL FURNACE

PROVIDING THERMOSTATICALLY CONTROLLED HEAT



IDEAL FOR SMALL HOMES

Any 4 or 5 room house may be heated comfortably with MONOGRAM Oil Furnace. It's fully automatic, the heating thermostatically controlled night and day. Dual registers (as shown) make it doubly effective.

NO EXPENSIVE DUCT WORK OR FLOOR SPACE REQUIRED

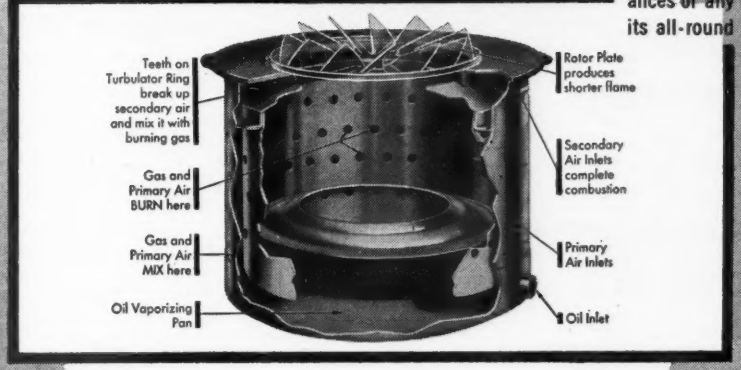
The MONOGRAM Oil Furnace fits into the wall. Easily installed in a day. Projects into the room only 3½ inches. Heated air is forced out at eye level. Furniture may even be placed right in front of the unit. Saves owner in many ways!

"FORCED AIR "BURNER PRODUCES MORE HEAT AT LESS COST . . . . . .

This exclusive feature of the MONOGRAM Oil Furnace makes the great difference! The design of this Burner, which is patented, enables it to actually produce more BTU's of heat for its size, and to deliver a wider range of operation and to work just as efficiently in cold as in mild weather. It's super!

. . . a CENTRAL HEATING PLANT at SPACE HEATER COST. . . . .

The MONOGRAM Oil Furnace is the answer to low-cost heating in small homes. It's so adaptable, and provides dual heating as illustration shows. And . . . it's economical. The patented "Forced Air" Vaporizing Burner gives more BTU's per gallon of oil than any other! This unit fits in any wall and enhances the appearances of any room. There's none to equal its all-round efficiency and adaptability.


Teeth on Turbulator Ring break up secondary air and mix it with burning gas
Gas and Primary Air BURN here
Gas and Primary Air MIX here
Oil Vaporizing Pan
Rotor Plate produces shorter flame
Secondary Air Inlets complete combustion
Primary Air Inlets
Oil Inlet

SPECIFICATIONS

BTU Rating . 65,000
Height from Floor of Front of Cab. . 74½"
Height from Floor of Back of Cabinet . 72"
Width of Front . . 32"

MF IN THE WALL

Monogram Furnace

MADE BY

THE QUINCY STOVE MANUFACTURING CO.

827 SOUTH FRONT STREET

QUINCY . . . ILLINOIS

SEND COUPON TODAY. . . . .

We are interested in what you say about MONOGRAM Oil Furnaces. Please furnish complete information, price, etc.

NAME_____

COMPANY _____

ADDRESS_____

CITY_____ ZONE____ STATE_____

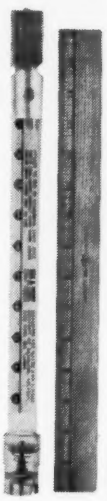
faces provide greater radiation for quicker heating of the filtered air that comes in contact with it. The heat exchangers carry a 10 year guarantee, and each one is pressure tested before final assembly.

Made by: Morrison Steel Products, Inc., 601 Amherst St., Buffalo 7, N. Y.

Circle No. 29 on coupon

Gage samples bottom Content of liquid storage Tanks

VISA-TEST GAGE is fastened permanently to the end of the standard liquid storage tank measuring stick to obtain an exact sample of the bottom content of the tank. The gauge shows an accurate cross-section measurement of the water, sludge, and other foreign matter which may be drawn by the suction line. Trip valve closes upon contact with bottom of tank permitting content sample to be raised and examined.



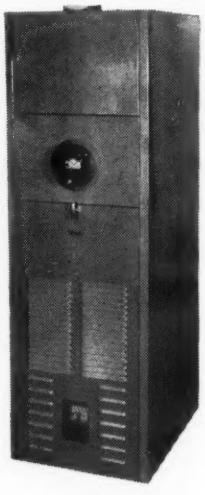
Component parts are not affected by any petroleum product. Measurement tape in tube is printed in white plastic and coated with clear plastic preventing discoloration or fading.

Made by: Visa-Test Sales Co., 1515 Alturas Drive, Burlingame, Calif.

Circle No. 30 on coupon

H. C. Little down flow oil Furnace for perimeter heating Installations

H. C. LITTLE announces new down flow oil furnace, especially designed for perimeter heating installations. Its features include: compact design, only 24" w. x 30¾" d. x 74" h., quiet operation, high efficiency, and easy access to the burner and controls by merely removing the large inspection panel.



An additional 21" x 14" panel at the top exposes the 10" blower. The smoke pipe outlet is at the top of the unit. Heat discharge is at the base of the furnace through an 18" x 18" opening. The return-air-intake at the top of the unit can be straight down or come in at either side or the back. The DF-AC is rated at 92,000 Btu/hr. output and is listed by the Underwriters' Laboratories for zero clearance at the back and both sides.

Made by: H. C. Little Burner Co., Inc., San Rafael, Calif.

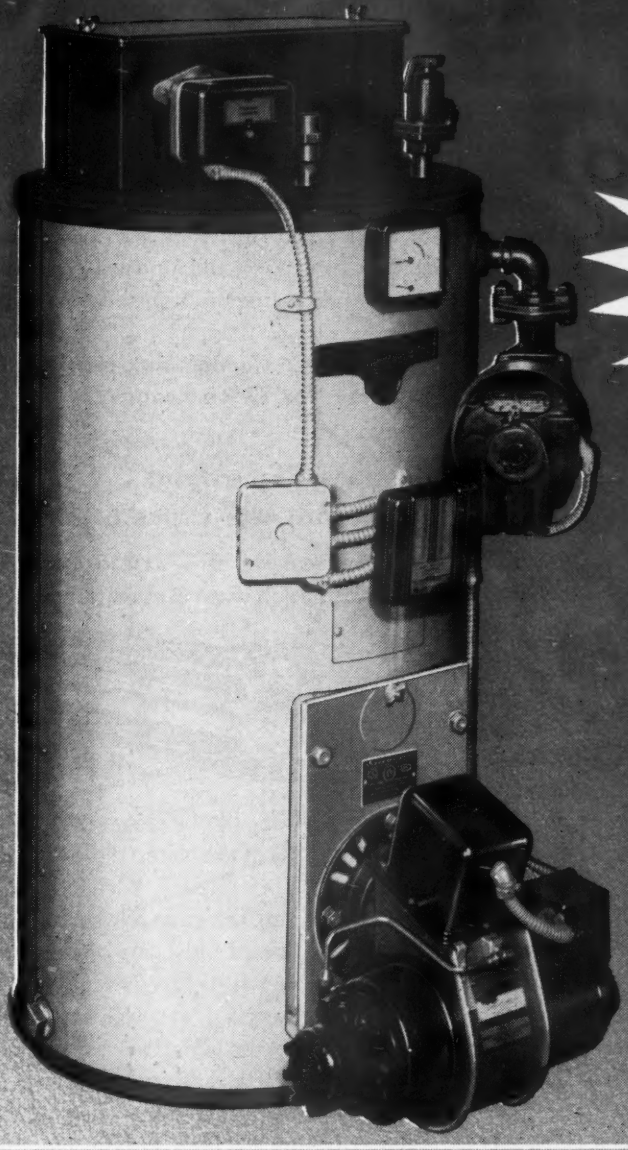
Circle No. 31 on coupon

Square-Line base Radiation with single or double Core

SQUARE-LINE base radiation is available in single or double core models. The single core unit projects 2½" from the

Keep TABS on
WIRING PERFORMANCE with-
CHESTER
plasticord-plasticote
WIRES & CABLES
Tested and Approved Beyond Specification
Chester ENGINEERED plastic insulation, laboratory and field tested to more than meet specifications, provides both easier working qualities and longer service life. These rugged plastic coatings offer maximum immunity to abrasion, weather, oil and most chemicals. Smooth and pliable, they pull through conduit easily.
OIL BURNER IGNITION CABLE
THERMOSTAT CABLES
TW BUILDING WIRES
INSTRUMENT WIRE
"Chesty" HAS THE ANSWERS — Plasticord and Plasticote wires are available in standard constructions or custom built to specifications. For a practical solution to unusual insulated wiring problems, call or write.
CHESTER CABLE CORP.
CHESTER, NEW YORK

The new FITZGIBBONS № 770 pre-assembled boiler-burner unit...



a hit

SAVES INSTALLATION LABOR

Completely pre-assembled, wired and shipped in a heavy reinforced carton ready for firing after minimum hook-up effort.

UNPARALLELED EASE OF SERVICING

Quick opening cleanout door in the top of the smoke box; large front access to the firebox; a drain cock and three plugged openings for flushing; all specialties conveniently located.

TOP PERFORMANCE FROM FITZGIBBONS BOILER TEAMED WITH THE FINEST EQUIPMENT

Constructed of "flange" steel plate in accordance with ASME Code, certified by a resident "Hartford" inspector, and tested, approved and rated under S.B.I. Codes. Oil burner and all wiring conforms to Underwriters Laboratory requirements.

HERE'S WHAT YOU GET WITH THE FITZGIBBONS 770

Fitzgibbons Steel Boiler Jacketed and Insulated	Room Thermostat	Automatic Air Vent
Fitzgibbons Oil Burner	Fitzgibbons TANKSAVER®	Compression Tank
Combustion Chamber	Flow Regulator	Flow Check Valve
Primary Control	Drain Cock	Pressure Reducing Valve
Operating Control	Relief Valve	Draft Regulator
Underwriter-approved wiring	Thermometer-Altitude Gauge	Flue-Gas Retarders
	Circulator	Thermostatic Control

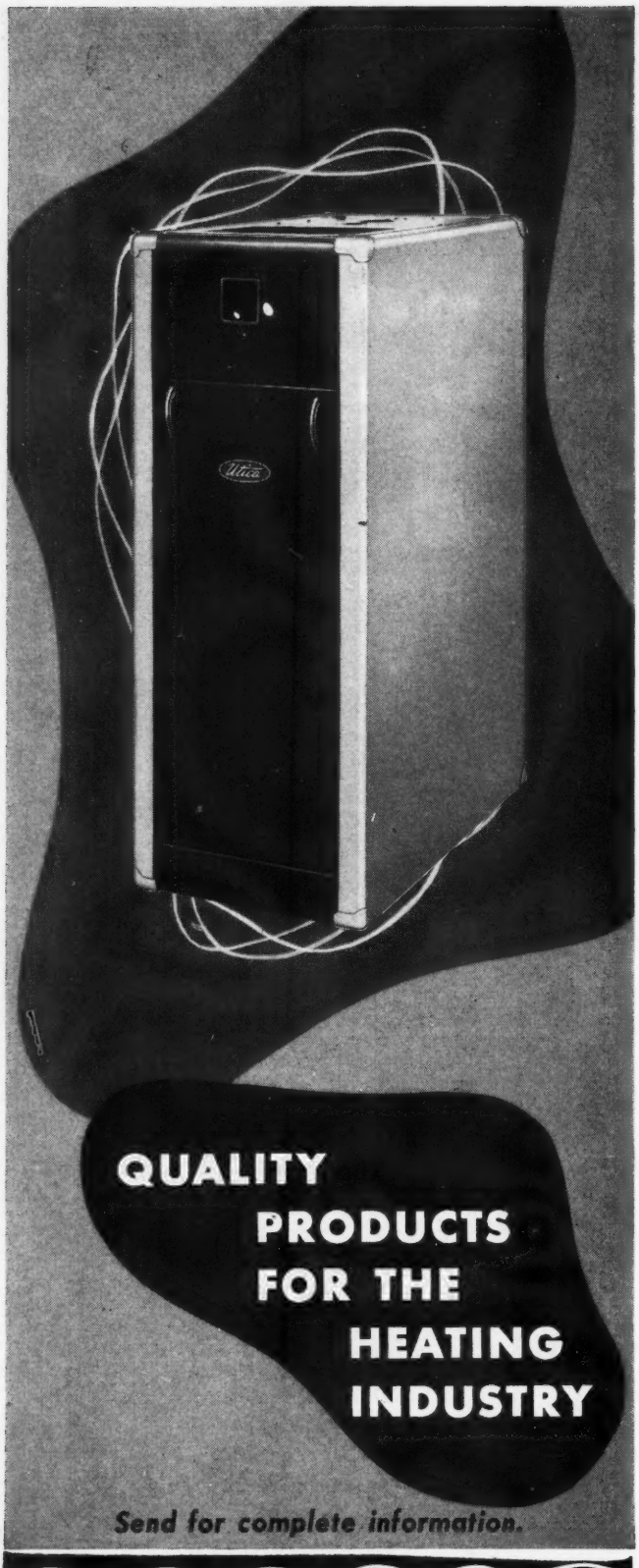
Ask your jobber about the New 770 Unit today. Or write for the complete catalog. Address Dept. FO-9

SINCE 1886 MOST ECONOMICAL IN FUEL THE FITZGIBBONS BOILER 1886

Fitzgibbons Boiler Company, Inc.

101 PARK AVENUE, NEW YORK 17, N. Y.

OIH



wall for the flush type, 1¾" for the recess type, with maximum height of the slanting top 8½" off the floor. Clearance between the bottom of the front plate and the floor is 1¼". Double core models may be used for parallel flow or "go-and-return." They have the same outside measurements as the single row, except they stand ¾" higher. Ratings per lineal ft. are 3-1/3 sq. ft. hot water at 180 degree average water temperature or 500 Btu, 3¾" sq. ft. hot water at 190 degree average water temperature, 560 Btu.

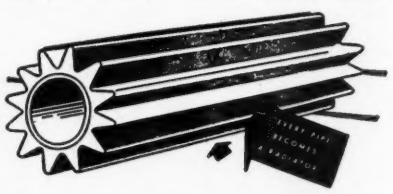
Square-Line units are constructed of copper pipe and non-ferrous fins. Ends, corners, splices, plates and sliding hangers are of steel. The steel back panel is aluminum coated to reflect heat outward and upward from the fins through the grille. A rating and installation guide is available.

Made by: Argo Co., 436 Capitol Ave., Hartford, Conn.

Circle No. 32 on coupon

Pilgrim Inustries Raparound converts Pipes to Radiators

RAPAROUND radiation material is described as making it possible to pipe a heating job without radiation and attach the material to the pipes and convert them to radiating units. Raparound is a rectangular, folded sheet, approximately 4" wide by 24" long and ⅝" thick. Its folds permit an extension of the material to wrap around pipe.



The material conforms to the rounded surface of any pipe size and if space is limited only part of the pipe surface need be covered. Also, where pipe is very close to the wall Raparound can be applied to produce a thin-line baseboard installation. Another variation uses the material betwen two or more pipes as a radiator to produce a wall of heat. Instruction manual and ratings are available.

Made by: Pilgrim Industries, Inc., 30 Huntington Ave., Boston 16, Mass.

Circle No. 33 on coupon

Thermo Products adds baseboard Panel for perimeter Heating

SEVERAL NEW FEATURES are incorporated in Perim-I-Base, patented baseboard panel manufactured by Thermo-Products. Its adaptability to remodelling, especially where solid masonry construction is encountered, as well as for new building, is of particular interest to the installer.

The use of standard 3¼" width fittings eliminates the necessity of buying or making special fittings and warm floors are assured by the direction of heat across the floor from the lower louvres. Outlets are tamperproof. Perim-I-Base may be decorated to blend with wall or woodwork.

Made by: Thermo Products, Inc., North Judson, Ind.

Circle No. 34 on coupon

TACO STEAM VALVE

HAS GONE OVER BIG!

There are no small ports to clog . . . no floats to stick, leak or collapse . . . no diaphram to snap or pop. It's inconspicuous and can be used on all steam radiators, convectors and mains. Can be installed in any position but upside down and it can be manually vented whenever desired.

IT'S QUIET

ACTUAL SIZE

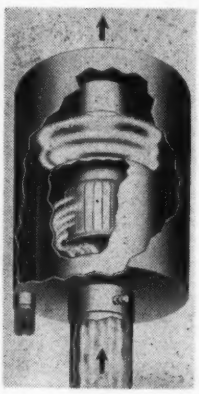
NO HISS
NO SNAP
NO POP
NO PING

Better Heating-Better with Taco

TACO HEATERS, Incorporated 137 South St., Providence 3, R. I.

Exhaust Head without moving Parts for industrial Uses

A NEW EXHAUST HEAD has been developed for industrial stacks to clean up exhaust steam and vapors discharged to the atmosphere. This unit effectively cleans up the vapor so that no nuisance particles such as troublesome oil and process liquors are vented.



This exhaust head has no moving parts or filters. The entrainment laden vapor entering the purifier is engaged by a stationary centrifugal element which imparts a carefully controlled but extremely rapid rotational motion to the vapor. This action guides all dirt particles, guck, oil and water outward to the walls of the purifier. Here it is ejected out the drain. The clean, dry steam continues upward and is discharged to the atmosphere. The unit is guaranteed 99% effective and the manufacturer states the greater the velocity through the unit the greater the operating efficiency.

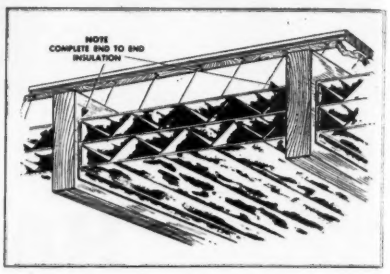
Although fabricated to specification, standard models have a slip-on or flange connection for the stack and a threaded connection for the drain; fabricated steel body and stainless steel centrifugal element.

Made by: The V. D. Anderson Company, 1935 W. 96th St., Cleveland 2, Ohio.

Circle No. 35 on coupon

New Infra Insulation prevents heat Loss and Condensation

THE LATEST Infra multiple accordion aluminum insulation offers complete coverage between studs and joists, providing end-to-end coverage against heat loss or intrusion and condensation formation. The multi-layered blanket of aluminum, fiber and air spaces is constructed of uniform depth, including the area immediately adjacent to the beam or joist.



Accordion aluminum has a reflectivity of heat rays of 97% and an emissivity of only 3%, its low mass and the air cells in it keep down conduction flow and the compartmentation blocks outer and inner convection. The aluminum sheets interpose a barrier to water vapor or gas, including warm or cold air. The new type is available as Type 60Si, with three aluminum sheets; type 4-Si, with two aluminum sheets; type 4-S Jr., made to fit spaces less than 2" deep.

Made by: Infra Insulation, Inc., 525 Broadway, New York, N. Y.

Circle No. 36 on coupon

ALERT SERVICE MEN SAY "General" FUEL OIL FILTERS

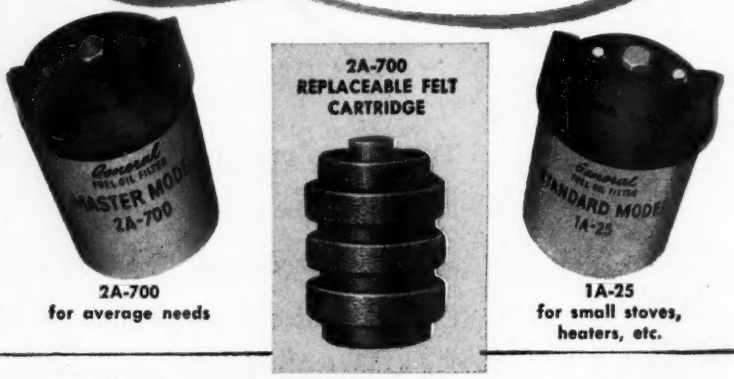
✓ AND CHECK OFF THESE ADVANTAGES

☐ **QUICK PROFIT**
Generals are *easy to sell* because customers *need* GF's positive filtering protection.

☐ **EASY SERVICE**
Single-bolt assembly means instant, sure servicing — no time lost through troublesome "call-backs."

☐ **REPEAT SALES**
Seasonal cartridge changes aid in finding new filter prospects, assure lucrative, dependable earnings.

☐ **SUPER-FILTRATION**
Finest *all-wool* cartridge and GF's unique filter design mean the *safest* filtering known!



2A-700 for average needs

1A-25 for small stoves, heaters, etc.

Veteran fuel oil service men enthusiastically agree that GENERAL FUEL OIL FILTERS are the finest *all-wool-cartridge* filter money can buy! Easily replaceable felt cartridges not only reduce maintenance to a few simple steps but assure positive filtering which puts an end to unprofitable service "call-backs." One cartridge change covers the entire season. In addition, GF's quick, out-in-the-open installations save you time and money on every job.

ANOTHER MONEY-MAKER!
CLEAN RIGHT Soot Remover works safely, gently, quickly cleans any heating plant. Made for General Filters, Inc.

GENERAL FILTERS INCORPORATED — GENERAL FUEL OIL FILTERS — 43800 Grand River Ave. Novi, Mich.
CANADIAN FACTORY BRANCH: CANADIAN GENERAL FILTERS, LTD., 2679 DANFORTH AVENUE, TORONTO 13, ONTARIO

LOOK!

the first complete line of HUMIDIFIERS

Skuttle again demonstrates the vision which has kept them in a leadership position for years . . . the *first* complete line of humidifiers.

Now, you can sell humidifiers in *any* home with any kind of heat . . . warm air, winter air conditioning, space heater, hot water, steam, and vapor.

Valves, floats and other operating parts are interchangeable . . . you carry less stock.

New, Skuttle Model 450 for very compact warm air furnaces

Where space doesn't permit the use of a series 600 Humidifier, Model 450 does an excellent job. It can be used if there is 3" or more space between furnace and casing—in counterflow, low highboy, highboy, floor and other type furnaces as well as space heaters. High evaporation. Patented Vapoglas plates. Leak and corrosion proof glass float. Nickel and chrome plated brass valve parts. Aluminum plate rack. Evaporating pan is double coated acid and alkali resisting porcelain enamel on steel. Both regular and electronic corrosion are defeated by this type construction.

Installation is very easy . . . just cut a slot in casing.

Write for literature on this and other Skuttle Humidifiers

Patented Vapoglas Evaporating Plates

Pure glass wool compressed under heat. The most efficient plate you can get. All evaporating plates should be replaced when clogged with water chemicals about once a year.

Skuttle

MANUFACTURING COMPANY

4099 BEAUFAIT • DETROIT 7, MICHIGAN

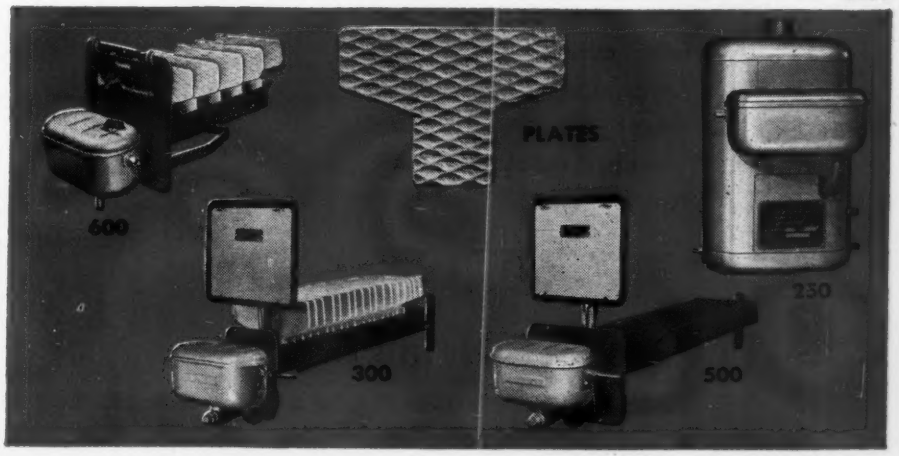
6460

Skuttle Series 600 Humidifier. .
The most popular of all humidifiers both with the public and the heating man. Self-flushing, self-cleaning.

Skuttle Model . . . 250 Gas Fired
Independently gas fired for homes heated by steam or hot water.

Skuttle Series 300 for Large Homes
Holds up to 35 Vapoglas plates—for large homes warm air heated.

Skuttle Series 500 for Coal Fired Warm Air Heat
Needs no plates—for use in high temperature plenums.



If you are using or contemplating the use of heat-resisting stainless steels for combustion chambers for oil burner furnaces, we are specialists in producing these types of steels.

Whether you are a large or small user of these steels, our facilities can offer exceptional service by especially shearing to your specified combustion chamber blanks, or multiples thereof.

Write us for additional information

ENGINEERING B-W PRODUCTION

Ingersoll STEEL DIVISION

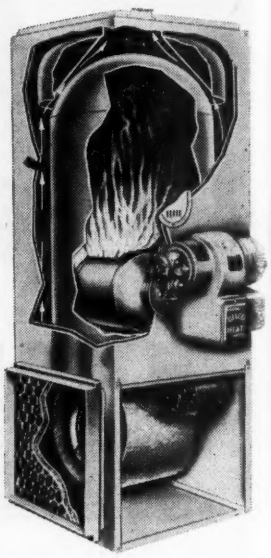
BORG-WARNER CORPORATION

310 South Michigan Avenue, Chicago 4, Illinois

Plant: New Castle, Indiana

Delco's newest heating Unit is low-priced oil fired Furnace

DELCO APPLIANCE announces the newest addition to its line, OBC-75H, the lowest priced Delco warm-air furnace. Its new design features wrap around casing and simplified construction. The Delco Heat OBC75H is the first heating product to be turned out in the Division's modern plant in Rochester, New York, where new mass production techniques enable the unit to be produced economically.



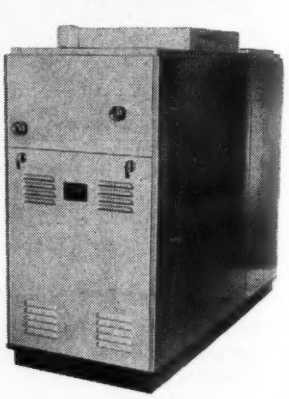
The OBC-75H, engineered for maximum operational economy, features a pressure-atomizing oilburner, 16 gauge heat transfer unit (seam welded), stainless steel combustion chamber, heavy duty steel cabinet, large capacity blower, spun glass air filter, Delco-built controls. Designed for application in closet, utility room or basement.

Made by: Delco Appliance Div., General Motors Corp., Rochester 1, N. Y.

Circle No. 37 on coupon

Robot Auto-Heat furnace Unit provides Heat and hot Water

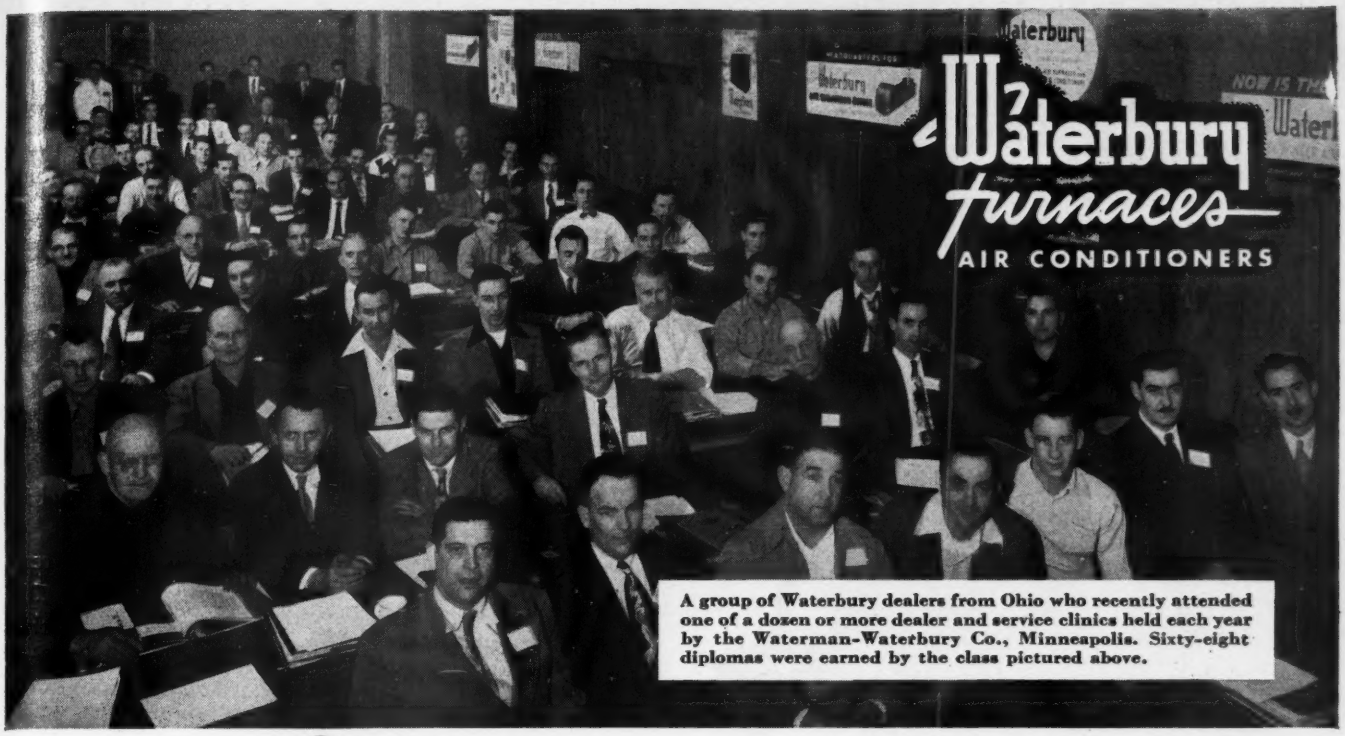
ROBOT AUTO-HEAT double-duty furnace combines warm air heating with domestic hot water heating. Heat exchanger in the new furnace is of tubular construction and contains 14 tubes fitted in a criss-cross pattern. A baffle plate arrangement directs heated gases from the combustion chamber through and around the heat exchanger twice. Four models cover the range from 80,000 to 300,000 Btu/hr.



Water heating is accomplished by a finned coil located next to the heat exchanger. A propeller type fan draws heat from the combustion chamber up through the fins. Water passing through the finned tubes is heated, then stored in a tank outside the unit. As the hot water is used, it is automatically replaced by the water heater.

Made by: Robot Auto-Heat Corp., Newfield St., Middletown, Conn.

Circle No. 38 on coupon



A group of Waterbury dealers from Ohio who recently attended one of a dozen or more dealer and service clinics held each year by the Waterman-Waterbury Co., Minneapolis. Sixty-eight diplomas were earned by the class pictured above.

Dealers Prefer

A FURNACE THAT REQUIRES NO APOLOGIES IN SELLING TO A PUBLIC THAT ACCEPTS NONE

The WATERMAN-WATERBURY Company gives you:

A nationally advertised product.

A sound dealer-distributor-factory policy.

A line for which there is an increasing demand.

YOU give your CUSTOMERS:

Quality workmanship in every unit that leaves the factory, matched by a quality installation.

A casing treated with Bonderite, the corrosion and rust resistant paint base.

A ten year guarantee with each furnace or winter air conditioner.

The Waterman-Waterbury Co.

OVER 46 YEARS OF WARM AIR HEATING

1171 JACKSON STREET N. E. • MINNEAPOLIS 13, MINNESOTA

KENT **Double Suction FURNACE CLEANER**

You can't make profits without performance—and that's where KENT shines! Two fans mean high vacuum, high air movement . . . low RPM of motor means long life. No outside dustbag, no dust passes through fans . . . low center of gravity, less chance of tipping. Convince yourself: it pays to buy a good tool!

Don't decide till you see the KENT!

Carries easily — base weighs only 39 pounds, dirt can only 24 pounds!

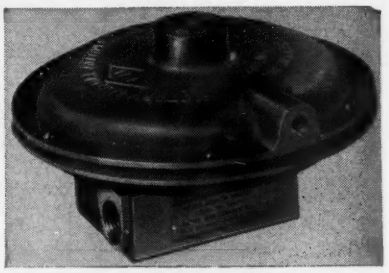
Full information upon request

CLEAN WITH **KENT** EQUIPMENT

The KENT Company, Inc. • 434 Canal St. • Rome, N. Y.

Dewey Safety Air-flow Switch stops Fuel if Blower fails

DEWEY Safety Air-flow Switch has been designed for use with industrial oilburners to prevent the fuel valve from opening until the fan is up to speed and also to shut off the fuel supply if the blower fails. It provides for purging of the furnace before the fuel valve opens and flashes danger signal if the fan or fuel is interrupted.



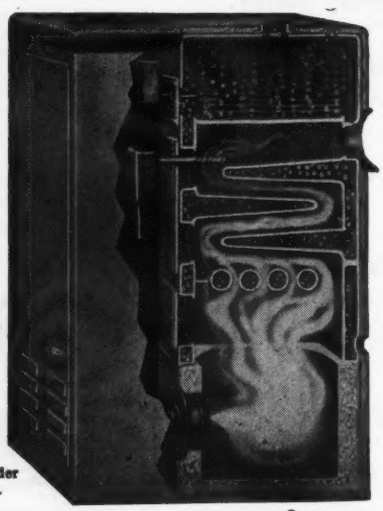
The switch operates on either positive or negative pressure, with the #114A switch making at plus or minus 0.33 ins. of water, breaking at plus or minus 0.20 ins.; the #114AF makes at plus or minus 0.22 ins. and breaks at plus or minus 0.10 ins. water. It has a 10 amp. capacity at 110 volts or a 5 amp capacity at 220 volts. Switch #114B makes at plus or minus 0.17 ins. and breaks at plus or minus 0.10 ins. water, has a 3 amp. capacity at 110 volts or 1½ amp. capacity at 220 volts.

Made by: Dewey Gas Furnace Co. 101 E. Baltimore Ave., Detroit 2, Mich.

Circle No. 39 on coupon

Steel HEATING UNIT

5 YEAR GUARANTEE AGAINST LEAKS



Licensed under U. S. Pat.

A FEW DESIRABLE EXCLUSIVE FRANCHISES ARE STILL AVAILABLE

Magic-HEAT

Product of MARIETTA METAL PRODUCTS CORPORATION MARIETTA, PENNA.

No. 440 Vented Fill Cap

Better Oil Burner Accessories mean better installation jobs—and you can't buy better than BUCKEYE! Buckeye-built equipment does an efficient year-in, year-out job without maintenance. The Vented Fill Cap which we show here is a good example. Its heavy cast-iron construction and simple design insure long life. Other Buckeye fittings are just as well-suited for the job they're made to do. For the best in accessories—look for the BUCKEYE name.

Buckeye

BUCKEYE IRON & BRASS WORKS, Dept. F, Box 883, Dayton 1, Ohio

Strainers • Sludge Pumps • Foot Valves • Fill Boxes
Check Valves • Vents • Shut-Off Valves • Bushings

C'mon-a our wigwam!

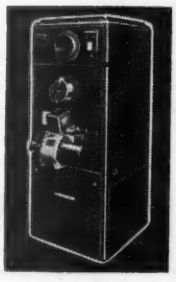
● If you object to cut-rate or factory competition moving in on your reservation, step into our tepee. Perfection has always respected the right of every jobber and dealer to operate as Big Chief in his own area . . . and what's more, provides him with the only *real* exclusives in the home heating and cooling equipment business today. The famous Regulaire* control and the fuel-saving 3-stage fire, *plus* Perfection's 10-year guarantee are sure to make "closing" sales easier. And you're solidly backed by the stability of Perfection's 65 years of doing business. If you're interested in a business-like set-up of this kind, let's get together. Write Perfection Stove Company, 7398-F Platt Avenue, Cleveland, Ohio.

Perfection's 3 point platform for dealers

Completely New!

LO-HI BOY Model F-605 Oil-fired furnace. Less than 61 inches high. Easily converted to gas. Gun-type burner. Matching Summer Cooling Unit.

*Patents Pending



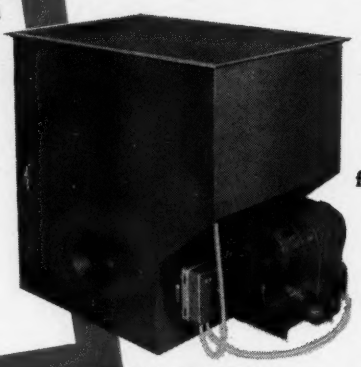
65 YEARS OF FINE PRODUCTS

Perfection

fueloil & oilheat

More Proof that KLEER-KLEEN is First with the Finest

Now . . .
PRESSURE BURNERS
Available in
KLEER-KLEEN
FLOOR FURNACES



Distributorships Available in Some Areas

All KLEER-KLEEN Pressure Burner Floor Furnaces are Listed and Labeled by Underwriters' Laboratories, Inc. — an added measure of safety and protection!

Now . . . 4 Floor Furnaces with PRESSURE BURNERS for Medium and Larger Size Homes—70,350 and 83,000 Btu/hr heat output.

These modern KLEER-KLEEN Pressure Burner Floor Furnaces outperform many of the larger, more expensive heating units now on the market.

KLEER-KLEEN MANUFACTURING COMPANY
140 ORCHARD AVENUE HAYWARD, CALIFORNIA

. . . . New Products

No malleting is necessary. To connect fittings, or runs of stacks, one piece is pressed on the other until it snaps into place, making a permanent installation.

Superior's new wall stack can be cut to desired lengths without damaging the Spee-D-Lok feature Each shipping carton contains 10 joints 24" long, 3¼" deep and 10," 12" and 14" wide.

Made by: Superior Metal Fabricating Co., Niles, Ohio.

Circle No. 44 on coupon

Auburn announces two Models of oilfired, portable Heaters

MODEL PH-1, heat output of 140,000 Btu/hr, and model PH-2, heat output of 120,000 Btu/hr, have been announced by Auburn as Porta-Heet units. Self-contained and portable the heaters are fired with gun type oilburners and may be used for heating or fan cooling. Heat is distributed on all sides from the bottom of the heater at work level. The units are operable either with or a flue or as a flueless unit. Mounted on rubber tired wheels, the units can be moved from place to place like a hand truck.

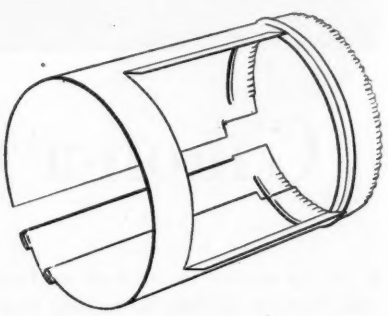
A flick of a switch starts the units, which have their own built-on fuel tanks and continuous electric ignition for the burners. All controls are included, factory-wired. Units weigh 375 lbs. and 425 lbs., respectively.

Made by: Auburn Burner Co., Auburn, Ind.

Circle No. 45 on coupon

E-Z 'Dapter eases Installation of Windmaster draft Controls

A NEW ADAPTER PIPE for draft control installations has been announced by Windmaster. Named the E-Z 'Dapter, this accessory item is designed for use with Windmaster Band-On draft controls and eliminates the cutting of a hole in the smoke pipe, guarantees full size opening into the pipe and



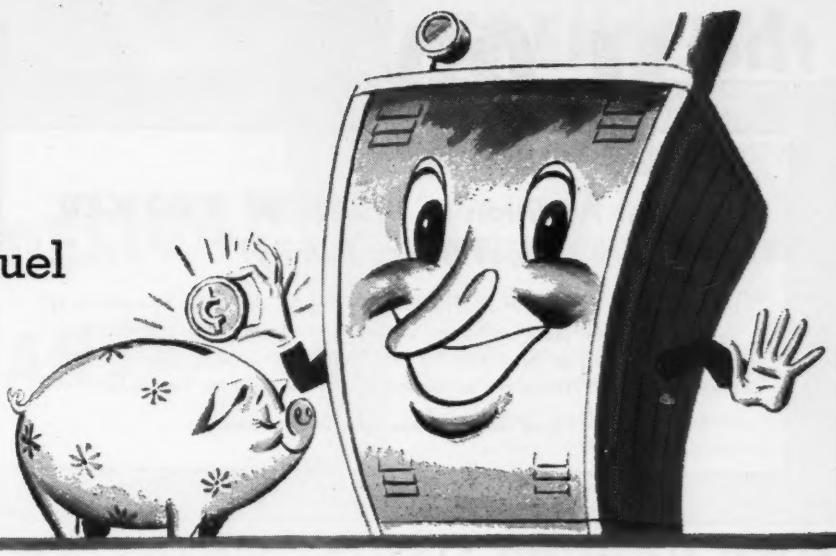
ONLY McCORKLE CONTROLS for Vaporizing Oil Burners
give you this combination of vital features

- Patented dual blade bi-metal assembly—insures trouble-free operation—supplies a wide margin of *extra* power.
- More rapid heat transmission.
- Snap acting Micro-switch.
- Heavier, more rugged construction.
- Less service—greater customer satisfaction.

We will gladly furnish literature and specifications for your particular requirements. Write us today!

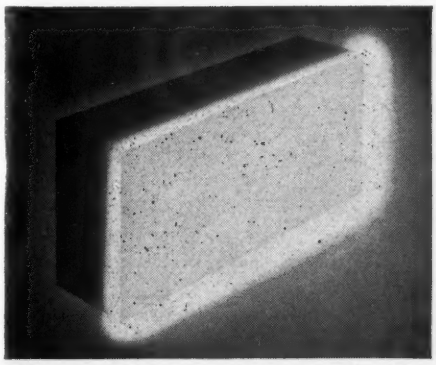
D. H. McCORKLE CO.
Box E, Station A Berkeley, California

"Now I heat up faster and save money on fuel with J-M Insulating Fire Brick!"



"We knew our 'skin-heat-in-seconds' would get you on the job in a hurry!"

You can build better fireboxes with this insulating fire brick that saves up to 10% on fuel



"Skin-heat-in-seconds" of J-M Insulating Fire Brick is demonstrated in this photograph. Within seconds after the burner goes on, the entire inside surface of the firebox becomes white-hot. Laboratory tests prove that this brick can save up to 10% on fuel.

IT'S EASY to make *lifetime* customers by saving them up to 10¢ on every dollar they spend for fuel. *Just build their oil burner fireboxes with J-M Insulating Fire Brick that saves fuel by getting a skin-deep curtain of white-heat intensity within seconds!*

Customers will also appreciate the fact that J-M Insulating Fire Brick in their firebox results in far less soot, smoke, and odor. And its light weight, cellular construction contributes substantially to quieter oil burner operation.

You'll find it easy to install J-M Insulating Fire Brick. Cut them quickly with a hacksaw blade . . . use them to build any shape or size firebox specified by the oil burner manufacturer. Recommended brick for domestic oil burner fireboxes are JM-20, JM-23, JM-26. For industrial use . . . JM-28 and JM-3000.

See your J-M Distributor for further information about these brick that heat up faster and save more money . . . or write Johns-Manville, Box [illegible] New York 16, New York. In Canada, 199 Bay Street, Toronto 1, Ontario.

For sealing against gas and air leaks, use J-M FIREITE* Asbestos Furnace Cement. For lining hearths of rotary burners, use J-M STANDARD FIRECRETE* — a hydraulic setting refractory — ready for use in 24 hours.

*Reg. U. S. Pat. Off.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville INSULATING FIRE BRICK

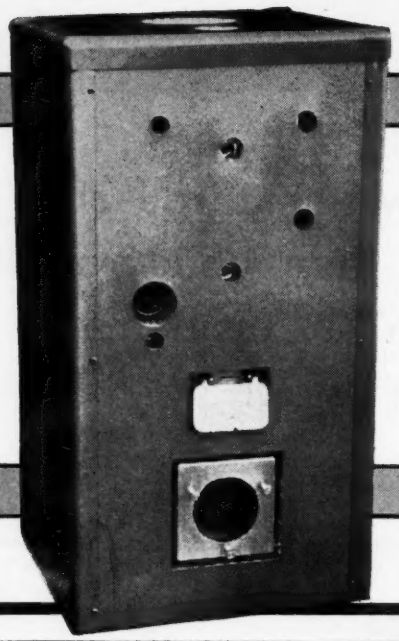
For "Skin-Heat-in-Seconds" in Fireboxes

the V-28

Newest Addition to the NEW YORKER Steel Boiler Family!

DESIGNED AND PRICED for today's small home. The attractive blue-and-gray heavy gauge steel jacket will dress up any utility room or basement. Ample domestic hot water furnished by the large (180 Gph) NEW YORKER tankless coil. All fittings are on the top and in the front for easy installation.

Send for prices and information NOW!



NEW YORKER STEEL BOILER CO. INC.
Colmar, Pennsylvania

comes already cut and flanged, with pipe crimp on one end.

Built with a plain edge, which can slip into either pocket to make one of two pipe sizes, the adapter fits together without hammering and is held tight by the bands with which the Windmaster draft control normally is attached. No special tools are required, other than a screwdriver to tighten the bands. Available in two sizes, the 6"-7" and 8"-9".

Made by: Windmaster Corp., Columbus 8, Ohio.

Circle No. 46 on coupon

All-Tite vane Runner developed for air conditioning and heating Ducts

ALL-TITE vane runners are available in 8 ft. lengths, 4¾" wide, and are made of 24 ga. galvanized stock. Designed for use with ventilating, airconditioning and heating system ducts, the fittings facilitate the installation of turning vanes in square elbows.

Vanes are cut from scrap metal, 6 to 6½" wide to height of elbow, shaped in roller and fitted into the slots of the All-Tite runner and peened. Assembled unit then is fitted into elbow and fastened with screws. On elbows more than 3 ft. high, two or more units can be stacked and additional length can be obtained by overlapping two pieces.

Made by: All-Tite Sheet Metal Co., Inc., 41-34 39th St., Long Island City 4, N. Y.

Circle No. 47 on coupon

Bard low pressure Oilburner designed for Efficiency at low gallonage Rates

BARD'S MODEL LP low-pressure oilburner has a capacity of 0.4 to 1.50 gph. A quick change of the metering cam under the end cover of its Sundstrand fuel unit can be made quickly by a screw driver adjustment right on the job. The Sundstrand 2-stage, low-pressure standard fuel unit with built-in lift pump permits use with underground fuel tanks and on suspended furnaces.

Features claimed include a nonclog, low-pressure spray tip, positive shut-off valve; easy-access air tube assembly; swing-away transformer; cast aluminum fan housing with built-in junction box; 4-in-1 multiple baffle plate.

Made by: Bard Mfg. Co., Bryan, Ohio.

Circle No. 48 on coupon

THOUSANDS OF OIL HEAT DEALERS SWEAR BY GORTON VALVES

Steam jobs can only be as efficient as the venting valves used. Many inefficient steam jobs need GORTON VALVES to make all radiators heat *even* and *quickly*. If you have not used GORTON VALVES, why not try them on your next steam job? The results will amaze you and you too will then swear by GORTON VALVES.

1941 Prices of Gorton Valves Still Hold!

Write for prices and literature.

GORTON HEATING CORPORATION
Since 1887—Manufacturers of Heating Equipment
CRANFORD NEW JERSEY

IMPROVED DESIGN!
WIDER RANGE!
SPENCER
TYPE "C"
SPENCER HEATER
SPENCER "C" BOILERS
For Larger Homes, Motels, Schools, Churches, Apartments
Commercial and Industrial Buildings
Capacity Range: 1100 to 5000 sq. ft. steam net rating
1760 to 8000 sq. ft. water net rating

SPENCER'S

POPULAR "C" BOILERS NOW OFFER NEW FEATURES ... NEW SIZES ... MORE ATTRACTIVE PRICES!

Now, the most popular series in Spencer's quality line of boilers is available for a wider range of jobs . . . and at more attractive prices.

Improved design now makes this outstanding boiler available with standard 15″ base or extra base heights, at nominal charge, for special fuel-burning installations. Four new larger models, with heavy 3″ fire tubes, have been added to the line, providing greater range in application.

Here are some of the outstanding features of the Spencer "C" Boilers: water-cooled, precision-ground flue and fire-door frames, equipped with heavy cast-iron insulated doors; extra-heavy steel-plate smokeboxes; staggered boiler tubes for rapid heat transfer; service water-heating coils in many capacities.

Entire boiler line available with attractive standard jackets, insulated with glass wool, with beautiful blue-gray hammerloy finish.

Any fuel can be fired in the Spencer "C" Boilers. Easily and quickly converted from hand to automatic firing.

For any job—residential, industrial or commercial—requiring 1100 to 5000-sq.-ft. net load steam, low pressure, specify one of Spencer's "C" Series. *Save dollars and provide the highest quality heating plant available.*

SPENCER
HEATER
LYCOMING-SPENCER DIVISION
WILLIAMSPORT AVCO PENNSYLVANIA

Spencer Heaters—Dept. FO-93
Lycoming-Spencer Division
AVCO Manufacturing Corp.
Williamsport, Pennsylvania

Dear Sirs:

Please send additional information and specifications on the new Spencer "C" Series Boilers to:

Name_____

Position_____

Company_____

Address_____

City_____ Zone_____ State_____

(*Begins on page* 84)

Iowa. The rack uses very little storage space and enables jobbers to stock a complete line of oilburner nozzles without tying up costly counter or bin space, according to David Morgenthaler, sales manager.

Morgenthaler added, "the rack reduces or eliminates storage of nozzles in bins, and allows quick, easy inventories because the entire stock is visible." "The rack should help both the jobber counter man and the customer to pick the nozzle wanted at a glance," he added.

Finished in bright yellow with red lettering, the rack has 35 channels with metal dividers separating nozzle types and sizes. It is 36" wide, 24" high and 1⅜" deep.

Four Sid Harvey Stores to open this Fall

FOUR NEW Sid Harvey stores will be opened this fall in Providence, R. I., Hartford, Conn., Allentown, Pa. and Brooklyn, N. Y. These territories previously were covered by salesmen from the Boston, Bridgeport, Reading and Brooklyn stores respectively.

Each of the new stores will carry the complete Sid Harvey line of replacement parts for all makes and models of oilburners, gasburners and stokers. This includes a stock of Sid Harvey rebuilt units for immediate exchange. On-the-spot motor rebuilding will be added as soon as possible. The new stores are to be managed locally by trained Sid Harvey associates.

This brings the total of Sid Harvey stores to 24.

A. O. Smith has portable Unit to show "Magic Brain" Control

A PORTABLE UNIT that enables a salesman tc demonstrate visually the working of the "Magic Brain" temperature control for home heating systems, manufactured by the A. O. Smith Corp., Los Angeles, has ben designed by Carter & Galantin, Chicago sales promotion firm.

The underside of the cover contains a cut-out space into which three different versions of a living room scene can be moved by turns of a dial. Changes in the coloring indicate variations in warmth of the room under inefficient heat control systems.

The main portion of the display, lighted from within by plugging in a cord into a wall socket, depicts a living room scene and below it a furnace with cold air return and warm air pipes. In a heating system, the "Magic Brain" control is installed in the cold air return. When the salesman slowly pulls an acetate strip at the top of the display, the cold air intake flow appears to increase, and simultaneously the furnace flame grows larger and the color of the warm air flow turns darker red to show an increase in the heat sent to the living quarters.

Two zone sales Offices opened by Coleman Company

THE COLEMAN CO., Wichita, Kan., has announced the establishment of two zone sales offices, one in Philadelphia and one in Dallas. In all four zone operations are being established, one having been recently opened in Chi-

Silent-Flame

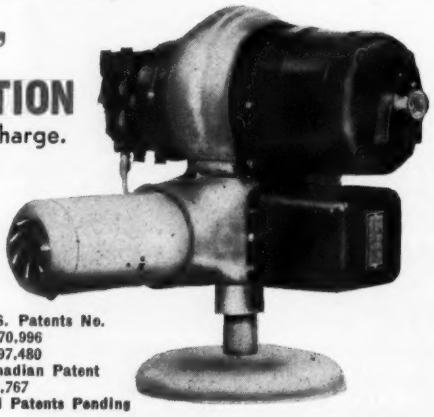
Business in "Millions" Profit in "Pennies"

18 Different Models — From ¾ G.P.H. to 30 G.P.H.

(Custom-built for any Furnace or Boiler—Flanged or Pedestal at no additional cost)

with the new "DUAL" TELESCOPIC TURBULATION

As standard equipment. No extra charge.
(NOT a combustion head.)



RESULT:

1. Clean fire
2. Ball Flame
3. High CO_2
4. Economical Operation
5. Trouble-Free Installation

U.S. Patents No. 2,570,996 2,497,480 Canadian Patent 469,767 and Patents Pending

"From the Raw Ingot to the Finished Product — Under One Roof"

SILENT-FLAME MFG. CO., INC., New York 72, New York

BUILT TO LAST..

and **favorably priced**

SUPER

IGNITION TRANSFORMERS

Quality is the watchword in the construction of Super Ignition Transformers . . . from creation to completion. The result is **longer, more efficient and dependable service.** Yet they are priced to **your** advantage.

CHECK THESE SUPER FEATURES

- Transformers built to both standard and custom specifications.
- Positive "moisture-proofed" ignition under all conditions.
- Patented Radio and Television shielding to effectively screen out static.
- A mounting base for every burner.
- 50, 60, 25 cycle, 110-220 volt models for export purposes.
- Performance that increases burner satisfaction . . . enhances burner prestige.

SEND US YOUR REQUIREMENTS NOW!

UNION ELECTRIC AND MANUFACTURING CO.
1057 Summit Avenue • Jersey City 7, N. J.

cago and one to be opened in Omaha, Nebr.

L. L. White, formerly manager of Coleman's Philadelphia branch, has been named eastern zone manager. Associated with him are Max M. Knight, A. A. Courtney and Alden E. Olander as regional sales managers and N. L. Kane and L. W. McInteer as field service engineers. Lawrence T. Ash, formerly a field director with the company's gas utility division, replaces White.

Zone manager of the southern office is Hascal Simmons. His staff includes Harold E. Wallof, Robert Lyda and Ivan Adkisson as regional sales managers and Irving Paeff and Dean Snyder as field service engineers.

Allied Engineer has been licensed to market TanKare

JOHN D. LANDERMAN, Allied Engineering Co., Boston, has been licensed by a major oil company to market TanKare, a corrosion-inhibitor developed to stop rusting in fueloil tanks. The product will be available to oil-heating dealers for resale to their customers.

Landerman also is the marketer of the Shell-designed combustion head, and has been since its inception.

Williams Oil-O-Matic uses Demonstrator as sales Aid

A VISUAL atomization demonstrator, which consists of two transparent closed chambers molded in strong plastic with a Williams fifty-ten metered low pressure burner firing into one chamber and a Williams model A-X high pressure burner firing into the other, is being used by the Williams Oil-O-Matic Div., Eureka Williams Corp., Bloomington, Ill., as a sales aid.

Since the unit's introduction about a year ago, it has received enthusiastic dealer support as a selling tool, according to C. S. Stackpole, division vice-president.

To increase customer interest and traffic, Williams also offers its dealers low-cost commercial TV films and movie trailers on the demonstration.

Chrysler Airtemp offers Film on Airconditioning

AIRTEMP DIV., Chrysler Corp., Dayton 1, Ohio, has made available to the interested public, a 16mm color and sound film, "It's In The Air," which tells the complete story of airconditioning. The film illustrates how extreme heat and cold, too much or too little humidity and air borne dust particles, affect our lives at home and at work.

To arrange for the film write, Modern Talking Picture Service, Inc., 45 Rockefeller Plaza, New York.

G-E Template simplifies Layout of heating Equipment

GENERAL ELECTRIC'S Home Heating and Cooling Department, Bloomfield, N. J., has announced a handy template especially designed to simplify layout of home heating and cooling equipment on architectural plans.

The multi-purpose plastic drafting aid can be used for locating G-E home heating and cooling equipment on plans and also as a guide for spotting G-E Air-Wall System registers. Equipment outlines are ¼" scale.

Made Stronger, to Last Longer!

GOODALL *"Long Life"* FUEL OIL HOSE

The extra strength and durability of "Long-Life" Fuel Oil Hose are the result of *quality* materials, *quality* craftsmanship, and Goodall's 83 years of hose-building experience. Its use assures *maximum savings* in hose replacement costs, and other profitable advantages.

Molded-and-braided construction, which means continuous full-reel lengths . . . Extremely flexible and comparatively light in weight, for quicker, easier handling . . . Double static wire bonded to couplings, for positive static protection.

Sizes 1", 1¼" and 1½". Tan cover.

Mail Coupon for Further Details and Prices

GOODALL RUBBER COMPANY
Whitehead Road, Trenton 4, N. J. **DATE** .....

Please send complete details and prices of "Long-Life" Fuel Oil Hose, Style L-60.

FIRM NAME .....

ADDRESS .....**City**.....**Zone**....**State**.....

GOODALL RUBBER COMPANY

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.
Branches: Philadelphia • New York • Boston • Pittsburgh • Indianapolis • Chicago • Detroit • St. Paul
Los Angeles • San Francisco • Seattle • Spokane • Portland • Salt Lake City • Denver
Houston • Goodall Rubber Company of Canada, Ltd., Toronto • Distributors in Other Principal Cities

Est. 1870

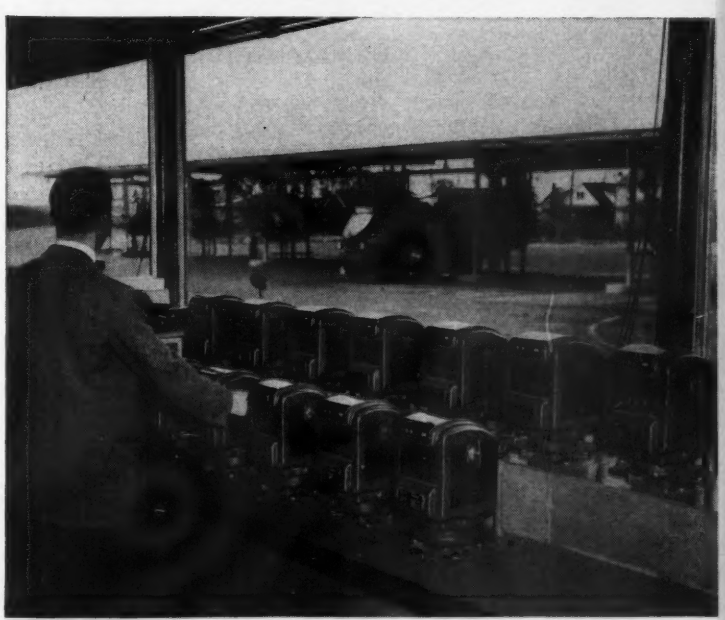
★ *Registers in the office automatically lock the shut-off valves on the rack so no product can be withdrawn until authorized.*

★ *Efficient drive-through layout together with Red Seal remote metering cut loading time tremendously in this fuel oil bulk plant.*

How to load trucks faster with closer control:

RED SEAL REMOTE CONTROL METERING

You can do what these efficient new bulk plants are doing . . . get trucks rolling minutes faster . . . with all control firmly under the thumb of one man. Each of the Red Seal Remote Control registers *in the office* is accurately synchronized with a rack meter outside. Your dispatcher handles many trucks with ease . . . no running back and forth . . . no waiting. Automatic interlock prevents withdrawal of product until authorized by inserting a ticket and clearing the proper register. Tickets are meter-printed right in the office, eliminating inaccuracies and speeding accounting. And you get the dependable accuracy of Red Seal meters . . . accuracy sustained for millions of gallons with lowest maintenance costs. Loading speeds up to 650 gpm. Ask our nearest branch office for details.



★ *No waiting . . . dispatcher gives "go-ahead" as truck rolls to stop. Meter-printed tickets save checking-out time, too.*

NEPTUNE METER COMPANY
50 WEST 50TH STREET. NEW YORK 20, N. Y.

55-G

neptune
RED SEAL METERS

BRANCH OFFICES: ATLANTA • BOSTON • CHICAGO • DALLAS • DENVER
NO. KANSAS CITY, MO. • LOS ANGELES • LOUISVILLE
PORTLAND, ORE. • SAN FRANCISCO
CANADIAN FACTORY: NEPTUNE METERS LTD.,
1430 LAKESHORE RD., TORONTO 14, ONT.

Small business Library active at Cities Service

THE CITIES SERVICE Small Business Library, established by Cities Service Petroleum, Inc., New York 5, under the direction of Mrs. Nathalie Ronis, reports that in the first half of 1953, marketers from all over the country have requested 8,603 individual pieces of business information from the list of 60 free items in the library. This compares with a total of 6,239 pieces during all of 1952 and 7,012 during 1951, the first year of the library's circulation. The library itself contains 94 pieces of business literature. These have been gleaned from hundreds of sources all over the country for items which specifically apply to the management problems of distributors and dealers.

Put in a showcase the size of a soldier's foot locker, the complete library has been placed in all states where the company and its subsidiaries operate. That was done to "bring the information close to the people for whom it was intended," according to L. T. White, manager, Business Research and Education for Cities Service, under whose department the library has been set up.

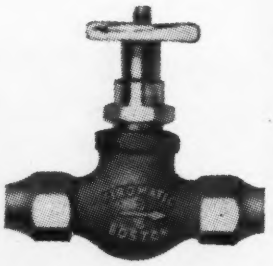
"We are convinced that the independent oil marketer wanted to help himself and would read business information, but just didn't know where to go for it. We knew he'd be quick to ask for material if we made it easily available," he added.

Judging by what they read, Mrs. Ronis reports, independent marketers today are concerned most about the problems of employee training, advertising and how to analyze their own operations.

Firomatic
PRODUCTS
VALVES • FUEL OIL FILTERS • SAFETY DEVICES

The Product Of The Month!

FIROMATIC FUEL OIL RANGE BURNER VALVES . . . designed to provide protection against the fire hazards of kitchen fuel oil range burners and space heaters.



Fusing temperature is set at 200° F. and replacement fusible handwheels are available for valves made especially for conversion range burners, space heaters and combination ranges. Firomatic Angle Type Range Burner Valves also available.

You Can Pay More, But You Can't Buy Better!

SEND FOR COMPLETE LINE CATALOG "F"

THE MORSE-SMITH-MORSE CO.
165 Dexter Avenue
Watertown, Mass.

SOLD NATIONALLY BY JOBBERS ONLY

Chinese Engineer among Group that toured Mueller Plant

AN ASSISTANT chief engineer in the National Chinese Government's arsenal on Formosa and an engineering trainee from India were among a group of five that toured the Climatrol plant of the L. J. Mueller Furnace Co., Milwaukee 15, August 11.

The engineer is Lo-Song Gih who has been in this country the last six months studying the production methods used by American industry. The man from India is Felix Veliath, a graduate of Milwaukee's Marquette University, who is in a training program at another Milwaukee plant.

❖

Marc Resek, formerly vice-president of engineering, has become vice-president in charge of all research, Perfection Stove Co., Cleveland. His new position will include market research, research for new and current products and research involving contract items. Associated with Perfection since 1915, Resek was named vice-president of engineering five years ago.

I. J. Scheckter has been elected president, The Eastern Foundry Co. and its division, The Peerless Heater Co., both located in Boyertown, Pa. Scheckter was previously executive vice-president, The Eastern Foundry Co. He became president of The Peerless Heater Co. in March, 1953.

Everyday Snags

Sizing hot water Rads

A heating engineer points out that oilheating equipment dealers are using three bases for figuring the sizes of hot water radiators in new forced-circulation systems.

For the same new building, Contractor "A" would install 1,500 sq. ft. of standing radiation, Contractor "B" would install 1,800 sq. ft., and Contractor "C" would install 2,400 sq. ft. The heating engineer is giving round numbers to avoid identifying the job and three contractors, he says, but these round numbers are within five percent of the actual numbers involved in this instance. Each of the three contractors was guaranteeing to heat the rooms of the building to 70° on days of design outside temperature.

To get down to brass tacks, the heating engineer carefully figured the heat loss of each room of the building. The total came to 360,000 Btu per hour, again in round numbers he says. Asked about this, the three contractors agreed that this total was correct.

Agree on building heat Loss

Contractor "A" says he makes his forced-circulation hot-water radiators "steam size" and gets away with it. To arrive at the size of the radiator needed for a room, he divides the heat loss figure of the room by 240. He has studied closely the resultant performance of his new heating plants, says he, and finds that a maximum boiler temperature of 200° is high enough for his domestic heating plants, and 225° is high enough for his commercial and industrial heating plants.

Contractor "B" figures a square foot of forced hot-water circulation gives 200 Btu's per hour, thus divides the heat loss figure of a room by 200 to arrive at the amount of radiation the room needs. His radiators are 20% larger than steam size.

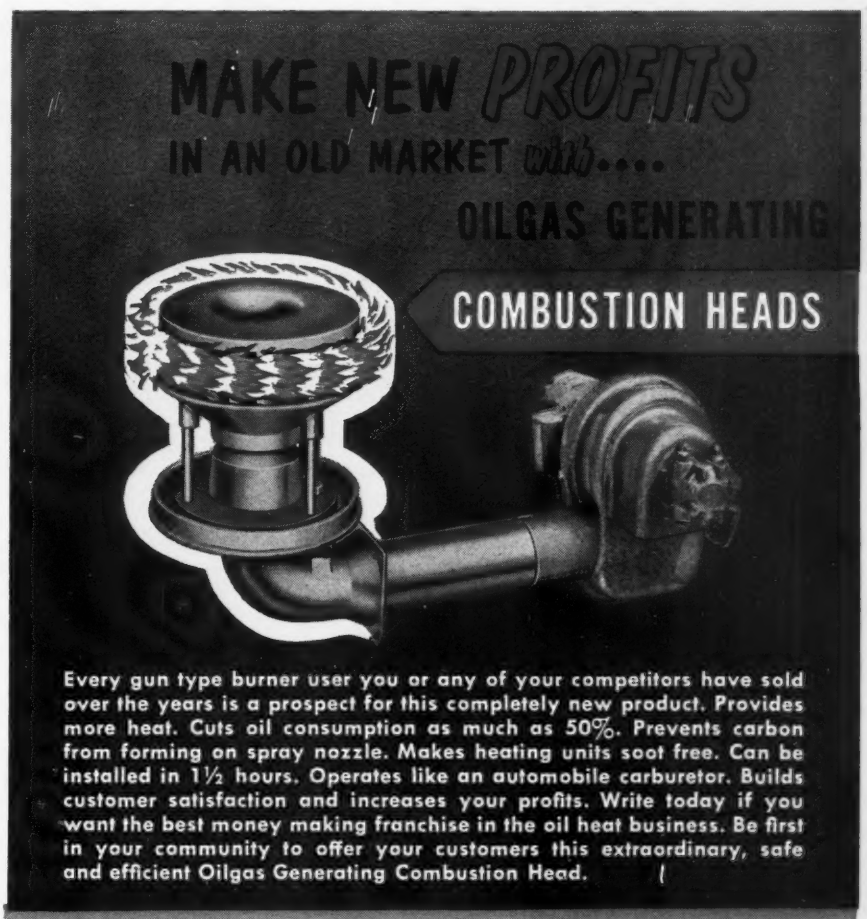
Contractor "C" is an old timer and figures forced hot-water systems on the same basis he has always figured gravity circulation systems. That's 150 Btu per square foot of radiation; radiators are 60% larger than steam size.

The heating engineer told the three contractors to install any amount of radiation they liked in each room, but give a guarantee to heat every room to 70° during coldest weather with the boiler temperature no higher than 200°. The result was that Contractors "A" and "C" shifted to the basis used by Contractor "B" (20% over steam size basis). Contractor "C," the old timer, got the job. His talks with the heating engineer taught him much about forced-circulation hot-water systems!

Leaky Faucets

Many tables have been published to show that the drip-drip of water from a faucet that fails to shut off dead-tight amounts to an astronomical number of drops—and thousands of gallons of water—on a yearly basis. In homes, as well as in apartment houses, hotels, and institutions, such sheer waste of hot water easily can double the amount of hot water that comes from the water heating arrangement.

Bear this in mind when you receive


MAKE NEW PROFITS
IN AN OLD MARKET with....
OILGAS GENERATING
COMBUSTION HEADS
Every gun type burner user you or any of your competitors have sold over the years is a prospect for this completely new product. Provides more heat. Cuts oil consumption as much as 50%. Prevents carbon from forming on spray nozzle. Makes heating units soot free. Can be installed in 1½ hours. Operates like an automobile carburetor. Builds customer satisfaction and increases your profits. Write today if you want the best money making franchise in the oil heat business. Be first in your community to offer your customers this extraordinary, safe and efficient Oilgas Generating Combustion Head.
Oilgas
GENERATING BURNER INC.
410 SOUTH JEFFERSON ST. • NEW CASTLE, PENNSYLVANIA
CLIP this coupon
OILGAS GENERATING BURNER, INC.
410 SOUTH JEFFERSON ST.
NEW CASTLE, PA.
Please send me complete details for securing an Oilgas Franchise and literature describing the unit.
NAME
FIRM NAME
STREET ADDRESS
CITY ZONE STATE

complaints about excessive oil consumption related to water heating as well as house heating. Make certain the hot water faucets on the trouble job can be closed dead-tight with ease. Try to make certain the house occupants close the faucets dead-tight after using them.

❖

Solomon Fine, owner, Consumers Fuel Co., recently marked his 30th year in the fueloil business, a business which has grown since 1923 into what is today one of the largest retail fueloil dealership's in the eastern panhandle district of West Virginia. Fine began his business by furnishing coal for the steam shovels used in the construction of the North Queen Street subway in Martinsburg, W. Va. In addition he began selling coal to many private homes. This started what was known as Mine-to-Consumers Coal Company which later was renamed Mine-to-Consumers Fuel Company after Fine expanded his business to include fueloil. The name has now been shortened to Consumers Fuel Co. Fine kept adding to his fueloil storage capacity to where he now has the largest fueloil storage capacity in eastern West Virginia.

William A. Cook has been named dealer sales manager and *J. C. Calhoon* assistant sales manager, The Meyer Furnace Co., Peoria, Ill. Cook will have charge of an expanded program of selling helps for Weir-Meyer furnace dealers and will supervise the activities of company engineers who work regularly with those dealers. Cook has a background of nearly 20 years in the warm air heating industry, including sales and promotion work for Green Colonial Furnace Co. and Armstrong Furnace Co. Calhoon will direct the sales of non-manufactured items. Previously, he directed sales promotion for Meyer. Prior to that he served as a territorial rep for the company in northern Illinois.

❖

Sales Appointments

Lawrence L. Arbuckle named by Bell & Gossett Co., Morton Grove, Ill., territorial rep in southern Alabama, western Florida and lower eastern Mississippi.

John M. Englisby to eastern regional sales manager, Combustion Control Corp., Boston.

Frank Doherty named sales rep by The Heil Co., Milwaukee, for Washington, D. C. district and *Charles Kahl, Jr.* named sales rep for Heil automatic heating equipment.

Hal Bales to represent Jackson and Church Co., Saginaw, Mich., in North and South Carolina.

Allen S. Carpenter to manager of General Control's Nebraska branch office.

Harold D. Crosser joins Perfection Stove Company covering territory of Indiana. Also Perfection has added *Gilbert Van Dolah, Jr.,* as its sales rep in western Kansas and *Wells Bridge* as rep for five counties in Ohio.

A. E. Vogel named field rep for Iron Fireman's eastern region with headquarters in New York City.

Sell H.C. Little up-flow and down-flow oil furnaces for REAL profit!

these advantages make sales!

New eye appeal—

Compact design—

Quiet operation—very important in first-floor units.

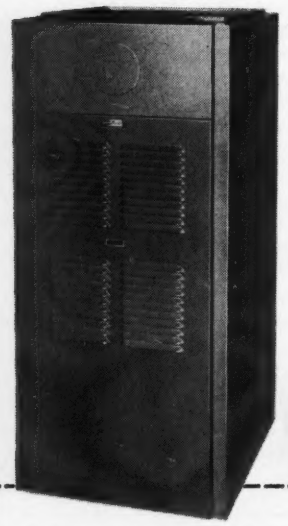
Easy to service—built with the service-man in mind.

Beautiful finish—smooth gray hammertone enamel.

Fully automatic—thermostat control, on-and-off operation, no pilot light.

Insulated blowers — cushioned for quiet.

Trapped-heat combustion chambers — extremely high efficiency.



(ABOVE) **TYPE DF-AC DOWN-FLOW OIL FIRED FORCED AIR FURNACE**—24"x30¾"x74". Easy access to blower and controls. Return air intake at the top can be straight down or come in at either side or back. Bottom discharge opening 18"x18". Highly efficient. Extremely quiet. 92,000 BTU/hr. output.

(LEFT) **TYPE U-AC UP-FLOW OIL FIRED WINTER AIR CONDITIONING FURNACE**—27½"x30"x60". Optional front or top smoke pipe outlet. Pull-out blower mounting. Quick accessibility to burner and controls upon removal of front panel. 82,000 BTU/hr. output.

(Specifications subject to change)

25th Anniversary H.C. Little Burner Co. Inc.

H.C. Little Burner Company, Inc.

Head Office: San Rafael, Calif.

Distributors in 18 Principal Cities

WRITE FOR COMPLETE PROFIT-MAKING FACTS TODAY

H. C. Little Burner Co., Inc.
San Rafael, Calif. • Dept. F-9

Send profit-making facts on your U-AC and DF-AC furnaces to:

Name_____

it's NEW!

THRUSH Tank Drain

Reduces DRAINING TIME

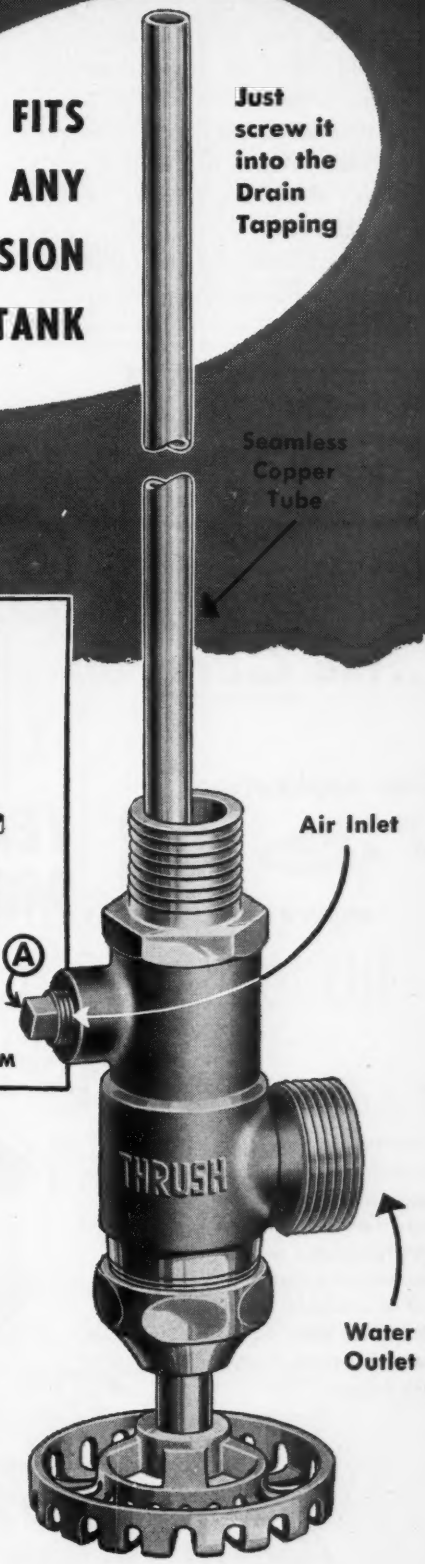
FITS ANY EXPANSION TANK

Just screw it into the Drain Tapping

Seamless Copper Tube

- A simple, inexpensive valve combining air tube and drain.
- Fits drain tapping... easily installed... inexpensive. Two tube lengths.
- Eliminates guesswork, saves time. A few minutes drains the average size tank.
- Pleases home owner, pays for itself on the first draining.

COMPLETE THRUSH SYSTEM



A REAL CONVENIENCE

and profit maker too!

DRAINING waterlogged pressure tanks is simple, quick and positive if you'll install a Thrush Tank Drain. While all genuine Thrush Pressure Tanks now come equipped with the Thrush Vacuum Breaker, there are many older installations where the tank has only one drain tapping. Now you can enjoy the same convenience in tank draining on these older jobs, too. The Thrush Tank Drain combines Vacuum Breaker and Drain Valve in one inexpensive fitting. When the tank needs draining, simply open drain, remove plug "A" to break the vacuum and tank will drain completely. It is a profit item you can sell all year through. For more information, see your wholesaler or write Department C-9.

H. A. THRUSH & COMPANY · Peru, Indiana

(Begins on page 50)

the area. In other words, if 40% of the heated air is being used to heat a particular area, then 40% of the return air should come from this same section.

In the house shown in Fig. 7 two 14 x 10 cold air returns will supply the necessary return air. Grille #1 will take care of the living room and the kitchen and grille #2 will take care of the two bedrooms and the bathroom. Since the heating load is about equally divided, the return air area can be equally divided also.

Fig. 11

MATERIAL Quantity	Description	Cost
1	80,000 B.T.U. Oil Fired Counter Flow F.A. Furnace	$290.00
2	Plenum Chambers 1 W.A. 1 R.A.	15.84
8	Conversion Collars 5" x 4"	4.44
8	Dampers	1.96
8	Stackhead 3¼ x 10—6 x 10	8.16
8	Boots 3¼ x 10—4" Round	8.16
8	4" Elbows	3.68
8	10 x 6 Diffuser Type Registers	8.60
5	4" Angles	2.00
110′	4" Round Pipe	17.60
2	12 x 14 Cold Air Faces	3.00
8′	12" x 14" Cold Air Return Duct	9.60
1	275 Gal. Oil Tank With Fittings	50.00
		$423.04
	Mark Up 20%	82.00
		$505.04
	Labor	100.00
		$605.04
	Overhead 10%	60.00
	Installed Price (less wiring)	$665.04

Note: Prices may vary in different localities but with quantity buying and close labor supervision the installed price could be lowered if necessary.

Figure 11 is a breakdown of the cost of installing this job. This sheet is almost self-explanatory. The greatest saving is due to the standardization of the parts. This also is reflected in the lower labor cost. Of course, there will be slight variations in different parts of the country, but for the most part this type of an installation will do a good heating job and give an exceptionally competitive bid.

❖

William R. Stott, a veteran petroleum products salesman and marketing executive, has been appointed deputy marketing coordinator, Standard Oil Co. (New Jersey) succeeding *J. W. Connolly,* who will be on special marketing assignments pending his forthcoming retirement. Since January, 1952, Stott has served as assistant marketing coordinator in the department which deals with Jersey Standard's world-wide marketing problems. Before joining the marketing coordination staff, Stott served 22 years in the marketing divisions of Esso Standard Oil Co., affiliate of Jersey Standard.

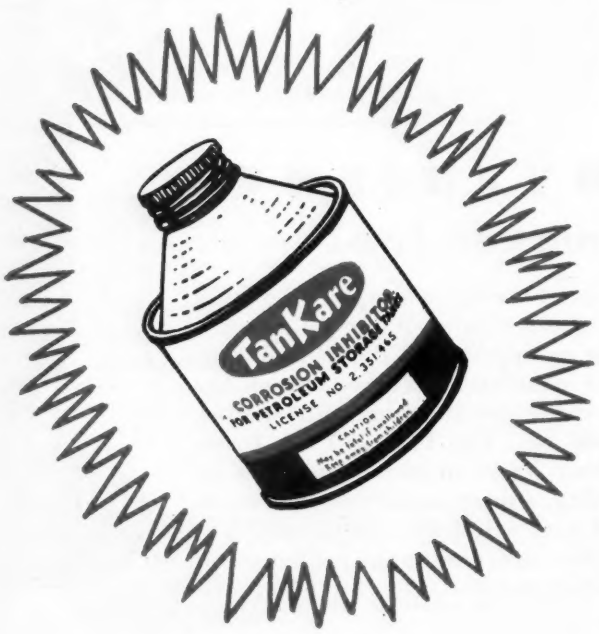
NOW AVAILABLE! . . . *from the Laboratories of a*

Major Oil Company:

...the Cure for your Leaky Oil Tanks!

One application of TanKare *assures*

3 YEAR PROTECTION AGAINST RUSTING



TanKare is the result of years of research and actually has been field-tested in more than 50,000 homes with remarkable results. Now—for the first time—it is available to all oil burning homes as insurance against costly tank failure.

Write Today to—

ALLIED ENGINEERING CO.

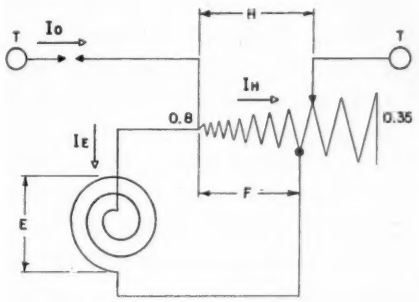
Shell-Designed Combustion Heads

Boston 34, Massachusetts

Round Thermostat

(Begins on page 52)

strates that the device has a control range of 70 to 72 degrees, with the control point at 72° degrees. These are arbitrary values used for illustration only, but the same general characteristics prevail regardless of the set point. As long as the room temperature is above 72°, the thermostat contacts cannot close; hence the heat never comes on. At the other extreme, whenever room temperatures are below 70°, the total artificial heat is insufficient to cause the thermostat contacts to open and the burner operates 100% of the time. At any condition within these two extremes, the heat will be cycled on and off with the frequency of operation period as well as length of the on period, determined by prevailing room temperature. Room temperature, therefore, serves only as the index for establishing the time cycle pattern the thermostat will provide.



The internal circuit *of the T86 thermostat may be simplified by omitting resistances that do not affect the bi-metal heating. The circuit then condenses:* I_O *equals primary controller current;* I_H *equals heater current and* I_E *equals bi-metal current. Variable resistance H is greater than the fixed portion F when primary current is between 0.35A and 0.4A. Thermostat then is connected in a series-parallel circuit. As* I_O *increases and the adjustable pointer H is moved toward higher current settings, the series resistance is removed and the circuit is connected in parallel. The 0.4A setting allows maximum current to flow through the bi-metal, producing maximum heat within the bi-metal and minimum heat within the heater. As primary controller current increases toward 0.8A, bi-metal resistance circuit becomes large with respect to the heater circuit and a greater portion of primary current passes through the heater.*

A major functional improvement of the new round T86 is the use of a spiral bi-metal element which contains a sufficient amount of electrical resistance to generate heat within the element itself when the thermostat is drawing current from a primary controller. In addition to the bi-metal, a separate heater assembly is wired with the bi-metal to form a series-parallel electrical circuit. The heater contains a pointer brush assembly adjustable to different heater resistance values and a pointer indicator scale marked in amperes of thermostat current. Since thermostat current is directly related to the current draw of the primary controller, the T86 heater can be universally matched to all primary controllers falling within the heater range of 0.35 amps to 0.80 amps. Another range heater is used for current draws up to 1.44 amps.

It is now possible to regulate the exact amount of artificial thermostat heat necessary for proper cycling of a particular heating system. The thermostat heater can be matched exactly

A POINT WITH SELLING PUNCH!

SINCLAIR PATENTED U.S. PATENT NO. 2,594,266 ANTI-RUST FUEL OIL CONTAINS RD-119®

Sinclair Anti-Rust Fuel Oil

So Different It's Patented!

U. S. PATENT NO. 2,594,266

...and it's that difference that's making sales soar for Sinclair jobbers. Sinclair Anti-Rust Fuel Oil contains the amazing rust-inhibitor RD-119®. It protects against rust-clogged filters and burner nozzles. It reduces service calls—builds good will and boosts profits for Sinclair jobbers.

ANTI-RUST Super Flame ®

SINCLAIR FUEL OIL WITH RD-119

to the relay being controlled to produce the optimum cycling rate for which the thermostat and heater were designed.

Since, in practice, heating systems are not always the correct size, the burner cycling rate must sometimes be changed. With previous thermostats, it was necessary to widen the differential to provide longer on periods. This type of adjustment is not adequate as can be shown by tests where only a ½° change lengthens the minimum on period from 3 to 4½ minutes. Carrying this further, an increase in differential up to 3.5° would produce an on cycle infinitely long and would have to be accompanied by a measured rise in room temperature before the contacts would open. It then becomes apparent why a fixed differential is a desirable feature.

❖

Jerome A. Clarke has been named head of sales training, Airtemp Div., Chrysler Corp., Dayton, Ohio, at the company's home office. Clarke has headed the Detroit regional sales office since 1950. He has been with Airtemp since 1940. Prior to coming to Detroit, Clarke was a member of the New York sales region.

Gerald F. (Jerry) Deer has been appointed by U. S. Machine Div., Stewart-Warner Corp., Lebanon, Ind., as regional sales supervisor of its western division for Winkler heating equipment. He will work with 14 Winkler district sales managers in a dozen central and midwestern states. Deer managed the heating department of a large Indianapolis fuel and equipment company prior to joining U. S.

❖

OHI Report shows more comm.-ind. burners Shipped

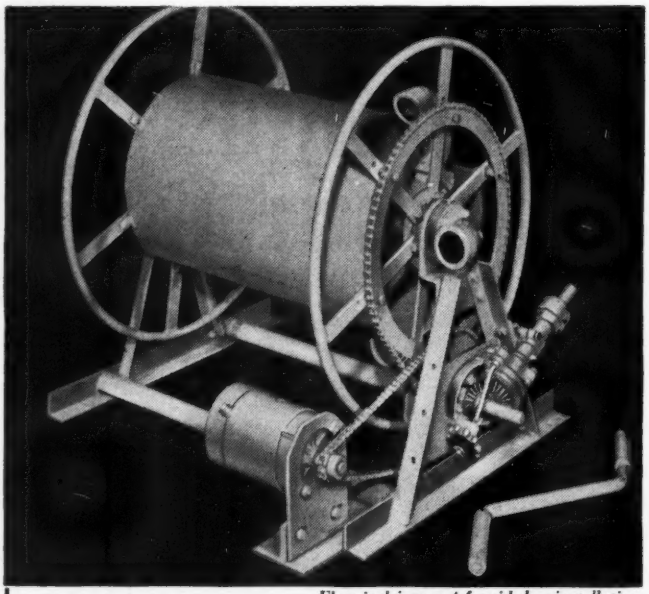
THE FIRST SIX MONTHS of 1953 registered a 28% increase in shipments of commercial-industrial oilburning equipment as reported to the Oil-Heat Institute of America. D. H. Bottrill, technical secretary of the Institute, has prepared a tabulation which shows shipments of 18,027 for the first six months this year, compared with 14,043 up to the end of June 1952.

Shipments for the month of June this year totalled 3,614, a gain of 37% over the 2,635 burners and units shipped last year during the same month. Bottrill explains that the increases reflect "greater sales activity and better market conditions."

Oilburners of all types shipped from factories during June totalled 3,447 plus 167 designed for oil and gas, any grades; for the six months' period, oilburners 16,878, plus 1,149 for oil and gas. The tabulation breaks down oilburner shipments.

Max. Cap. gph	*June 1953*	*Six Months 1953*
HORIZONTAL ROTARY:		
2½ and under	125	1,669
Over 2½ to 8	24	131
Over 8 to 30	634	2,415
Over 30 to 100	553	2,041
Over 100	50	181
Total shipments	1,386	6,437
HIGH AND LOW PRESSURE GUN:		
Over 5 to 30	1,938	9,591
Over 30	44	457
Total shipments	1,982	10,048
MECHANICAL AND STEAM ATOMIZING:		
30 and over	79	393
TOTAL ALL TYPES	3,447	16,878

New low-priced hose reel operates *over* 1,500,000 revolutions *without losing a drop*



Electric driven reel for side box installation

Self-tightening seal enables it to stand up under toughest, heaviest work loads

The finest hose reel ever built for fuel oil, gasoline, compressed gases and chemicals. Will never wear out. Exhaustively tested.

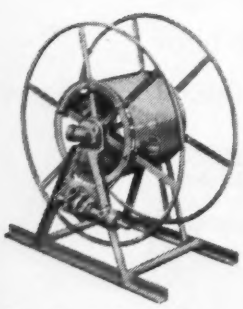
No leaking, no sweating after a million revolutions at pressure from zero to 100 lb. per sq. in.

A new, self-tightening seal in swing joint is the secret. This seal is easily, quickly replaced without breaking lines.

Features include light weight (85 lb.); holds 100 ft. of 1¼" hose; swing joint with clear, uninterrupted passages; every part steel, malleable iron or bronze—no cast iron; rigid base, welded throughout; six ball bearings on every reel; all working parts accessible; reel can be quickly unbolted.

This hose reel is made in all sizes from 1" to 3", for bucket or underslung box installation. Available with standard or explosion-proof electric motors, any voltage; air or hydraulic drives. We can equip them with automatic stop, level winder, friction, jaw, or electric clutches if desired.

Delivery usually within one week. Write for prices and details.



Hand-wound reel for rear box installation

PHILADELPHIA VALVE COMPANY

3413 ARAMINGO AVENUE • PHILADELPHIA 34, PA.

Pacific Coast Distributors:

Oil Marketing Equipment Co., 325 Fremont Street, San Francisco 5, Calif.
Howard Supply Co., 5125 Santa Fe Avenue, Los Angeles 11, Calif.

"What's that you've got there?"

"The way you went by me up that hill —I figured you must have a load of feathers!"

That's what other drivers are saying about the Autocar V/8. Its amazing performance on or off the highway makes them want to look under the hood. Its economy and low maintenance costs are giving owners a new idea of how to haul at a profit. The Autocar V/8 is the greatest thing in heavy-duty hauling.

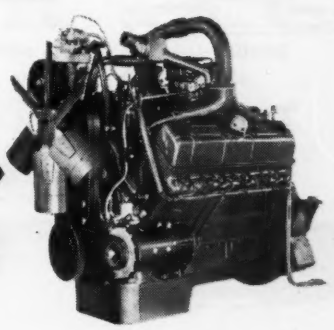
Find out for yourself what the Autocar V/8—200 horsepower pulling a new lighter-weight chassis—can do for you.

AUTOCAR TRUCKS

The Autocar Company, Ardmore, Pa., U.S.A.

ESTABLISHED 1897

Factory Branches and Distributors from Coast to Coast in the United States and Canada. Export Division: Drexel Building, Philadelphia 6, Pa., U.S.A.



Send for the Autocar V/8 booklet

The Autocar V/8

fueloil & oilheat

Everybody Sells

(*Begins on page 53*)

room which enables each salesman to keep current on his progress.

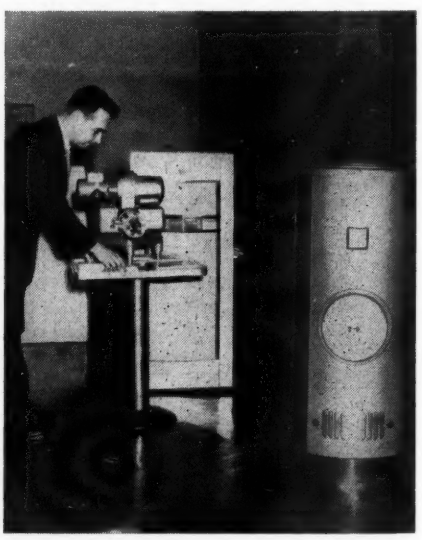
The chart summarizes all sales activity, including oilheating equipment sold, fueloil accounts and renewals and service contracts secured.

Two of the salesmen are assigned to fueloil sales, spending about 90% of their time renewing regular contracts and securing new customers. Haab has accumulated a list of more than 10,000 fueloil users in the area, apart from his own customers to whom he has sold oilheating units. Periodically this list is circularized, with the salesmen following up to sign new fueloil contracts. "About 45% of our new fueloil customers," Ritting declares, "come from present, regular users. We welcome new fueloil customers, too, for the opportunity they offer for later equipment sales, as well as the continuing income gained from the fueloil, itself." The fueloil salesmen also call on customers who fail to send in a renewal contract.

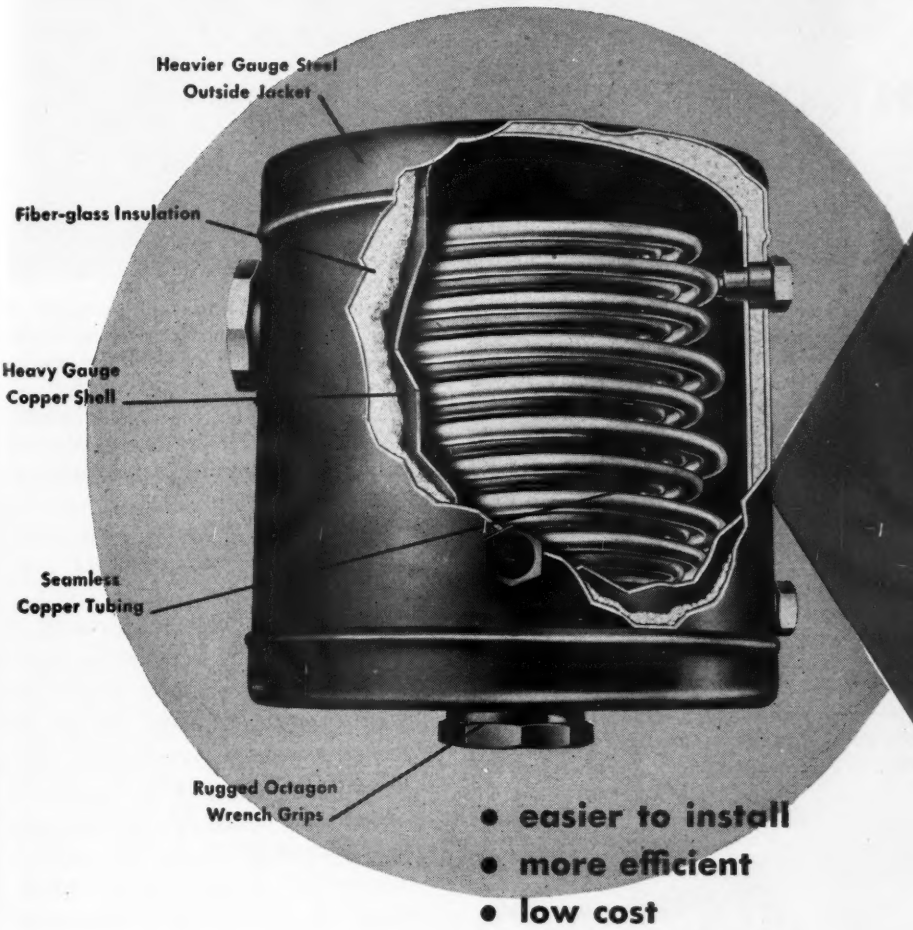
Another interesting employee policy of the Haab organization requires that all fueloil truck drivers be hired originally as oilburner installation men. In this way they can be assured continuous employment since they function as truck drivers during the heating season and work on burner installations during the other months. The company operates as many as 23 tank trucks to deliver about 24 million gallons of fueloil each year and the con-

WHEREVER LOSS OR DANGER DUE TO LEAKS MUST BE AVOIDED . . .
A SOLDER SEAL TRADE TiteSeal MARK PRODUCT
AYE! IT'S THR-RIFTY, TOO!
GASKET & JOINT SEALING COMPOUND
Titeseal is unsurpassed for leak-proof, pressure-tight connections. Titeseal is unaffected by water, oil, gasoline, ammonia, glycerine, steam, gas vapor, exhaust fumes and most hard-to-hold liquids. Withstands extreme temperatures; will not shrink, crack or crumble. Remains pliable and will not harden.
BRUSH-ON
TiteSeal
LIQUID TYPE NON-HARDENING
GASKET & JOINT SEALING COMPOUND
RADIATOR SPECIALTY CO.
CHARLOTTE, NORTH CAROLINA
IN CANADA: RADIATOR SPECIALTY CO., LTD., TORONTO
2031

One of these *Haab salesmen has just begun a showroom demonstration; the other is straightening up after completing one. The large display of burners and units maintained is helpful in closing sales. Each salesman is encouraged to bring into the showroom as many prospects as possible. Company records indicate that better than 60% of them become customers after a showroom demonstration.*



Compact General All-Copper Tankless Water Heaters...



Give you more tubing in smaller shell

- easier to install
- more efficient
- low cost

More compact . . . more efficient . . . these General All-Copper Tankless Heaters have been engineered to take *full* advantage of the space within the heater shell. They contain as much, or more, tubing as "bulkier" heaters of equal capacity.

General's Unique "Whirlpool Spiral" Design

Continuous copper tubing within the shell spirals in and out . . . is evenly distributed, provides better tube spacing, free boiler circulation, more uniform heat transfer, and permits using more tubing in the same volume.

You Save Time and Labor

One man can easily make the entire installation. You save time and back-breaking labor . . . your customers get piping hot water at low cost. And these General All-Coppers are attractive . . . blend with modern surroundings. Check all the advanced features of these high quality Heaters . . . sizes for every home, apartments, hotels, country clubs. Write for new illustrated folder.

General Fittings Co.,
125 Georgia Ave., Providence 5, R. I.

GF

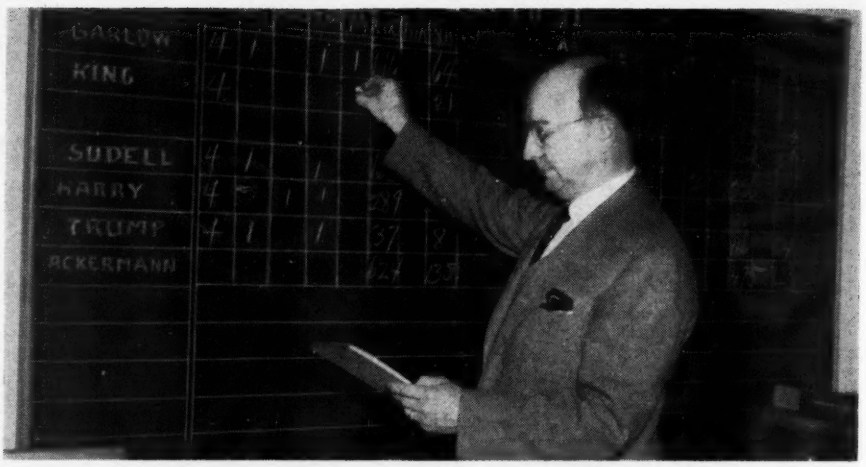
GENERAL

TANKLESS AND INDIRECT WATER HEATERS AND HEATING SPECIALTIES

fueloil & oilheat

stant employment provided for the drivers reduces to a minimum employee turnover in this department.

The F. C. Haab Co. has been operating since October 1945 when the business started as an appliance dealer. Four months later in February 1946 Haab became Philadelphia distributor for Oil-O-Matic and organized a crew to merchandise oilheating. For 21 years before World War II Haab had been manager of Petro's Philadelphia branch and when the war ended decided he wanted to go in business for himself.



Raymond G. Ritting, *sales manager of F. C. Haab Co., makes entries on the salesman's quota chart. Equipment sales, fueloil contracts and service contracts are recorded for each salesman, on which he receives his normal commission, plus bonuses if he makes or exceeds his quota.*

This brief insight into a corner of Haab's progressive organization merely highlights the planning that underlies the entire operation. Besides the general strategy that governs the overall conduct of the business, serious consideration obviously has been given to make each employee feel he is participating in an integrated effort, each division of which is dependent upon another and each division of which contributes to the success of all.

Unlike Jimmy Durante, Haab doesn't complain when "Everybody wants to get into the act."

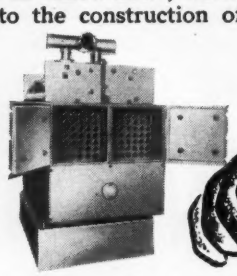
❖

Fred Kaiser has been named manager, eastern region, Minneapolis-Honeywell Regulator Company, with headquarters in New York. The eastern region covers New York, New Jersey and all of New England. *Arnold Michelson,* who has been handling the regional manager's duties, has been named resident vice-president. Since 1949, Kaiser has been field sales manager for the company. He joined Honeywell in 1926 as service and sales representative later serving as branch manager in the Syracuse, Buffalo and Detroit offices. In 1944, he became Midwest regional manager.

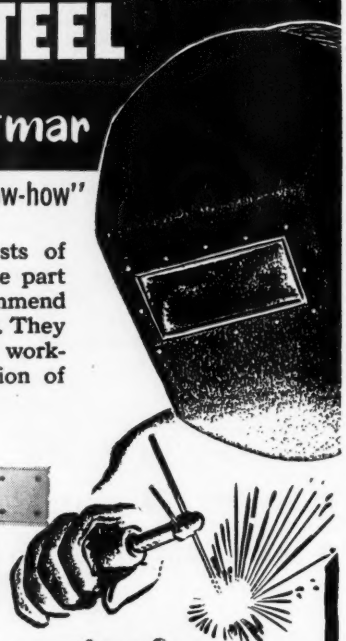
ENGINEERED STEEL BOILERS by Portmar

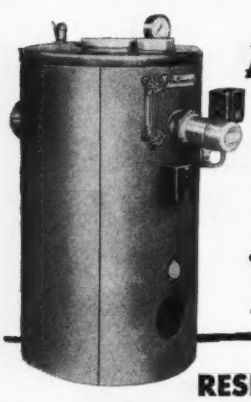
...are rated for their dependability and "know-how"

PORTMAR engineering "know-how" consists of one part ability, one part training and one part experience. Architects and contractors recommend and install thousands of Portmar Boilers yearly. They know that the correct mixture of "know-how", workmanship and materials go into the construction of every boiler.



New Type "C" Boiler for the commercial field—being prepared for delivery to a public institution. Available in *split sectional* and one piece construction for apartment house and all large structure installations. 12 sizes, from 3,650 to 21,250 sq. ft., steam. Larger boilers made to order.

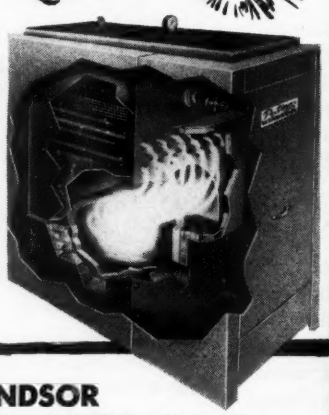




Budget Priced for Faster Sales!

Portmar offers a complete line of *oil or gas fired* heating boilers for *steam and hot water systems* — in all capacities.

• *Contact your jobber or write direct for literature and prices.*



RESIDENTIAL
"Vertical Tube Series"
For the cottage and small building in both flush and extended eye-appealing jacket styles. 6 sizes — Steam: 320 to 1,100 sq. ft.

WINDSOR
"Horizontal Tube Series"
For the small building, larger residences, and medium sized buildings with attractively styled extended jacket. 12 sizes — Steam: 320 to 3,000 sq. ft.

"Engineered Quality Steel Boilers for Luxurious Heating"

Portmar Boiler Company Inc.

193 Seventh Street • Brooklyn 15, N. Y.

RESIDENTIAL, COMMERCIAL, INDUSTRIAL WATER HEATERS AND HEATING BOILERS
PORTMAR STEEL BOILERS • ROTARY FLAME BOILERS

A NEW, COMPLETE LINE

HERCO *Stainless Heat*

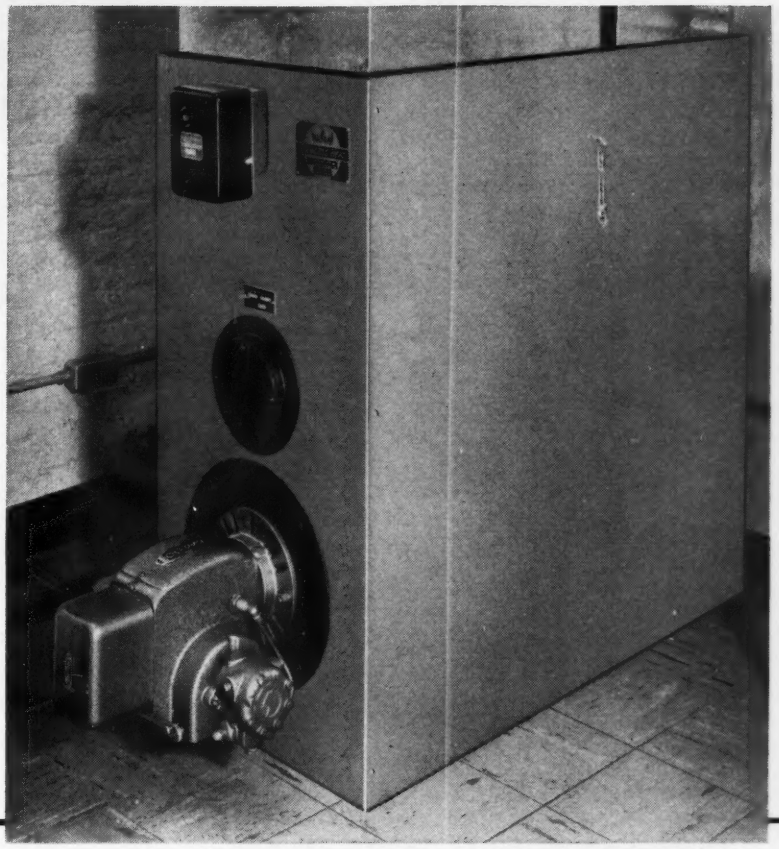
WINTER AIR CONDITIONERS

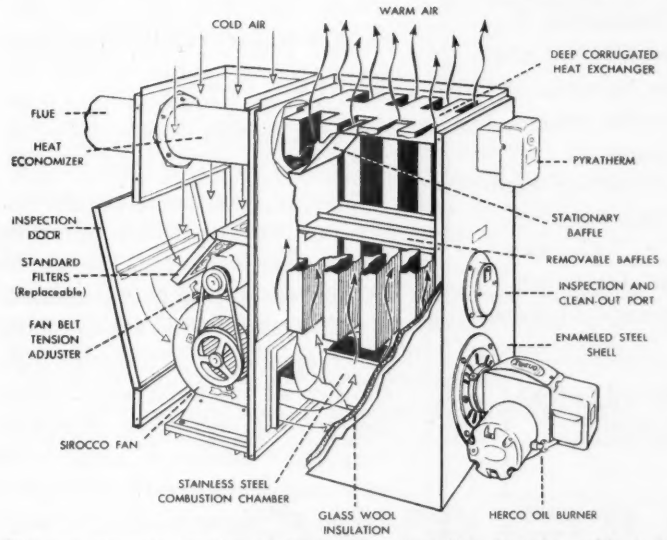
8 MODELS—(65—150,000 B.T.U.)
COMPLETELY ASSEMBLED
EASY TO SERVICE

A complete new line of compact, good looking warm air units by the manufacturers of Herco Oil Burners. For homes, cottages, stores, small industries.

Unique "corrugated" heat exchanger makes units compact (require 6-7 sq. ft. floor space!). Furnace is factory assembled with Herco Burner ready to install. Easy service — loosen 4 bolts, burner and combustion chamber are quickly removed. Stainless steel combustion chamber delivers heat quickly, economically, resists rust.

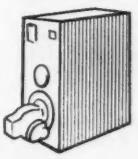
4 Types: Lowboy (illus.); Highboy; Horizontal; Counterflow. Fully automatic, insulated. Summertime blower hook-up.



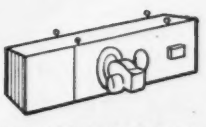


This is a cut-away drawing of the Stainless Heat Unit. Incoming cold air is pre-heated by the heat economizer, as it passes thru filters into the heating chamber. The deeply corrugated sections of the heat exchanger account for the compactness of the furnace, and give you over twice the prime heating surface of many conventional furnaces requiring the same floor space.

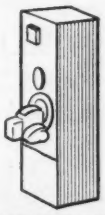
A TYPE FOR EVERY INSTALLATION



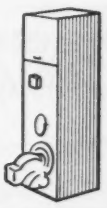
LOWBOY SERIES
Illus. above. For medium homes, etc. Five models: 70—90—110—130—150,000 B.T.U.



HORIZONTAL SERIES
For suspension from floor or ceiling joists in small, medium buildings. Three models: 65—85—125,000 B.T.U.



HIGHBOY SERIES
Similar to Lowboy. Smaller capacity. For cottages, cabins, etc. Three models: 65—85—125,000 B.T.U.



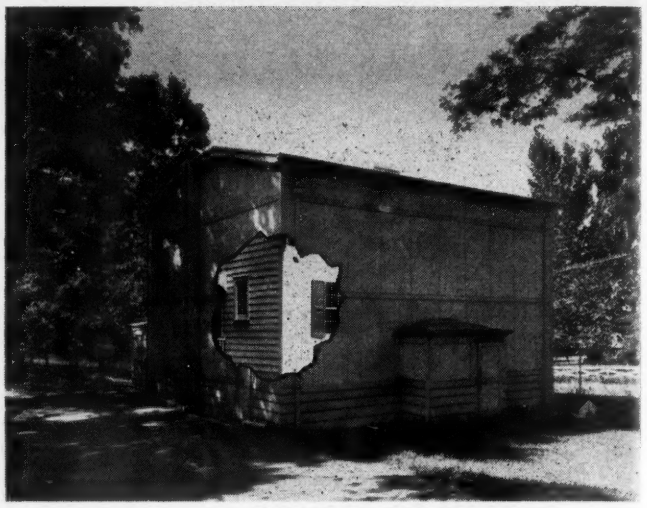
COUNTERFLOW SERIES
For basementless installations and perimeter heating systems. Three models: 65—85—125,000 B.T.U.

Free: Colorful catalog. Explains Stainless Heat in terms your customers will understand. Specifications incl. Write to — **HERCO OIL BURNER CORP., LANCASTER, PA.**

(*Begins on page 60*)

operating at rated voltage averaged about 340° F.

Temperatures observed for 11 test conditions with constant outdoor temperatures in the range from 0° to 32° F. showed that in the living zone, 2″ to 60″ above the floor, vertical temperature differences were moderately low: 3.5° F. for an outdoor temperature of 32° F., 0.7° F. per foot of height; 7.0° F. for an outdoor temperature of 0°F., 1.4°F. per foot of height. Average gradient from floor to ceiling was a little lower than in the living zone, ranging from 0.6°F. per foot for the higher temperature, 1.1°F. per foot for the 0°F. temperature.



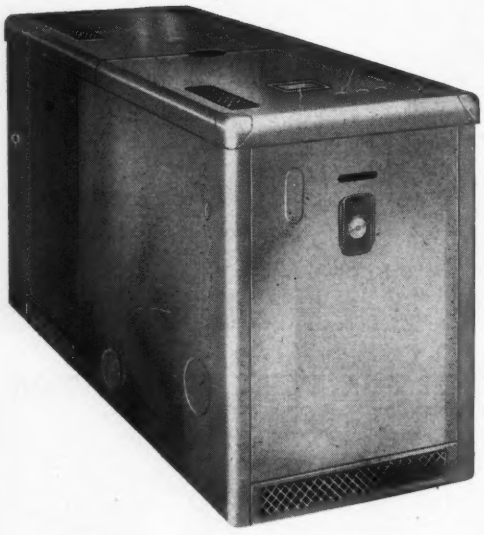
Tests *on radiant glass heating panels were conducted in the National Bureau of Standards test bungalow, a small one-story house of four rooms and bath, with a hallway near the middle of the structure connecting the rooms. It is completely enclosed in an insulated structure with a five foot space between outside bungalow walls and the inner walls of the enclosure. Unit coolers in the enclosure allow the control of outdoor temperatures. Thermocouples, suspended at various levels throughout the house, were used with indicating and recording equipment to observe the temperature distribution throughout the house.*

Vertical temperature differences in the living zone with the radiant glass panels were about 1° to 2° F. greater than those observed in the same house with a baseboard convector heating system. Insulating walls and adding storm windows did not change significantly the vertical temperature differences, but the per cent of time during which the heaters were energized was appreciably less in the insulated house.

Average horizontal temperature variation between stations of observation within individual rooms was 1.6° F. for an outdoor temperature of 32° F. and 2.6° F. for an outdoor temperature of 0° F. when the differences of all five levels were averaged together for each room. Horizontal temperature differences within rooms were consistently greater, however, at 2″ and 30″ above the floor, since the electric panels were located below the 30″ level and emitted more radiant heat to some of the thermocouples than to others.

Maximum horizontal temperature difference between rooms remained

There's A Bright Future For You With The Bethlehem DYNATHERM



Despite the DYNATHERM'S outstanding advantages it costs amazingly little more than converting an old boiler!

- **The Bethlehem DYNATHERM Creates Satisfied Customers . . . gives them more for their money in fuel economy, in compactness, comfort and convenience!**
- **The Bethlehem DYNATHERM offers all the features that make your sale easier . . . The Whirling Flame . . . Unit Engineering . . . "Thermos Bottle" Insulation . . . Beautiful Cabinet.**

REMEMBER - - - YOU CAN SELL THE BETHLEHEM DYNATHERM WITH PRIDE, CONFIDENCE AND PROFIT!

A few exclusive Bethlehem Dynatherm territory Franchises are still available. Wire or write immediately for full information.

BETHLEHEM FOUNDRY & MACHINE COMPANY
BETHLEHEM, PENNSYLVANIA

2 HEATING UNITS in a SINGLE SPACE!

The Aldrich Heat-Pak Boiler-Burner

That's The Sales Story to Help You Sell

ALDRICH
BOILER-BURNERS

Today's home owners are smart and value-conscious. They know it makes sense to install a plant that provides *BOTH* home heat and hot water supply in *one* space-saving unit. Why litter small basements with *two* bulky heaters? Why *two* separate fuel supplies and two separate heating bills?

There's GOLD in this Sales Story. TELL IT!

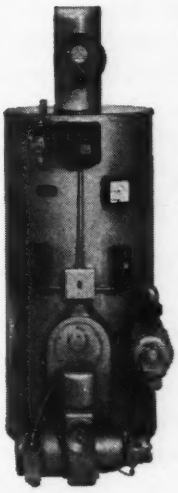
This is the sales story Aldrich dealers tell – and this is how they are making new customers and friends! High efficiency, compactness and handsome styling provide exactly what home owners demand. Basements now are roomy playrooms – not "boiler rooms."

Why ALDRICH Offers You 90% of the Heating Market

Aldrich Boiler-Burners operate on oil or gas, as desired . . . are easily convertible. Oil and gas constitute 90% of the home heating market – your field with Aldrich. Remember, too, that over 60% of home heating plants are incapable of providing BOTH heat and hot water in one unit, with one fuel, in one space, as Aldrich can.

Aldrich Boiler-Burners are soundly engineered, ruggedly constructed . . . strikingly simple . . . have automatic controls – all easily accessible. Dealers make more on service, because service calls take less time and labor.

Aldrich equipment means excellent fuel combustion – maximum heat units from every unit of fuel.



The Thrifty, "Gulf-Stream" Space-Saving Fully Equipped

ALDRICH Features That Mean BUSINESS!

- Heat and hot water from a single unit.
- Removable hot water coil.
- Easily serviced – easily cleaned.
- Accessibility of parts.
- Handsome hammerloid dress shell.
- Removable combustion chamber.
- Balanced construction for maximum fuel efficiency.
- Wide range of sizes, ratings.

Write today for complete details, specifications of the wide-range, versatile Aldrich line.

ANOTHER BREEZE MARK PRODUCT

ALDRICH COMPANY

A subsidiary of Breeze Corporations, Inc.

SBI

103 East Williams Street, Wyoming, Illinois

ALDRICH HEAT-PAK PRODUCTS

virtually the same when all levels of observation were considered in computing the average. Greatest variations usually occurred at levels 2" and 60" above the floor and insulating the walls and adding storm windows did not change these horizontal temperature variations.

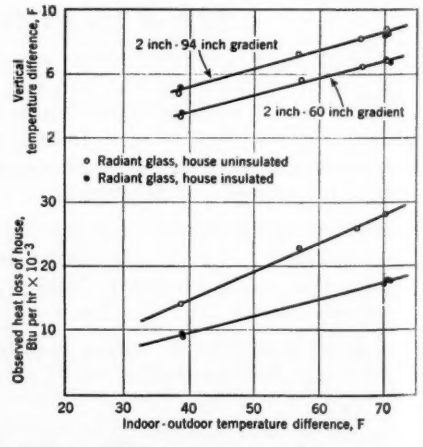
Heat loss of the test bungalow was 8.33 kw at an outdoor temperature of 0° F. with walls uninsulated and 5.18 kw with walls insulated. Because line voltage was only 208 volts, the 10 panels installed consumed only 8.2 kw of electric power and as they were not installed to exactly equal the heat loss on a room-by-room basis, some of the rooms of the uninsulated house were slightly underheated at 0° F. Relation between heat loss and indoor-outdoor temperature difference was linear. The ratio of the heat loss of the insulated structure to that of the uninsulated structure was 62% for 0° F. outdoor temperature, 66% for 32° F.

Attempting to heat the insulated house with six panels at an outdoor temperature of 0° F. and using two panels in the living room and one each in the other four rooms, the tests developed that some of the rooms were underheated because the heat loss of a particular room exceeded the installed capacity of that room. It was concluded that heating units of lower and intermediate wattage capacity were desirable for heating small rooms.

A comparison of the radiant panels in the uninsulated bungalow with a forced warm air heating system using baseboard registers with vanes to direct the heated air at the floor showed that the radiant system provided more radiant energy at the 30" level and more comfort at the floor level. Then the effect of lowering and raising thermostat settings showed that in the insulated house using all 10 panels, 1 hr. is required to raise the room temperatures from 65° to 70° F. at an outside temperature of 0° F.

Analysis of the tests indicated that compensated room thermostats, which have very low differential producing rapid cycling of the heating units, are desirable with radiant glass heating panels. Results showed further the effectiveness of a control device which would permit heating the house to a comfortable level at design outdoor temperature, but which would limit the electric power demand to a value approximately equivalent to the design heat loss rate.

(*Concluded on page 174*)



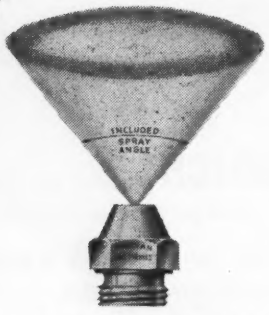
Radiant glass *heating panels were tested with the house insulated and uninsulated. These curves compare the vertical temperature differences and heat losses over a wide range of indoor-outdoor temperature differences to illustrate the effect of insulating the house.*

Install new

DELAVAN

NOZZLES

To Cut Down on "Call Backs"



DELAVAN TYPE A HOLLOW CONE

Replacing carboned nozzles with new DELAVAN nozzles has paid off for thousands of oil burner service departments. You'll save valuable time, reduce service costs sharply, because "no heat" calls and "call backs" are kept to a minimum. **Install Delavan Nozzles with Hally Filters Attached.**

Every DELAVAN nozzle is spray-tested and proved accurate for rate of flow, spray angle and spray quality.

Write for Catalog 148B

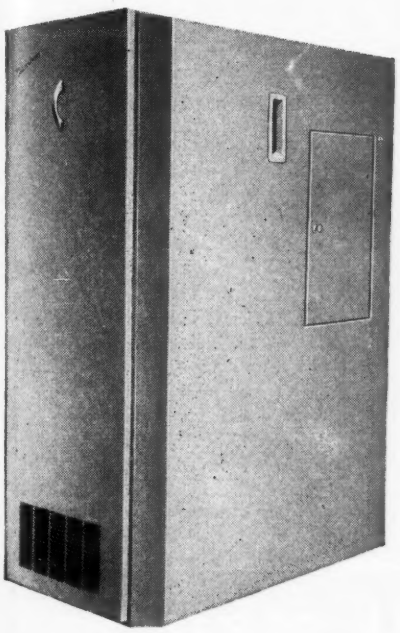
DELAVAN MANUFACTURING CO.

Grand Ave. & 4th St. • West Des Moines, Iowa

MEMBER OHI OIL HEAT INSTITUTE OF AMERICA

NO SALES ARGUMENT TOPS QUALITY...*plus*

THE SOLID COMFORT OF HOT WATER HEATING!



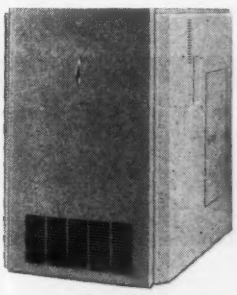
A better sales argument than QUALITY has yet to be invented. Quality speaks for itself, at all times and in all situations. Add to this the obvious advantages of hot water heating over other methods and you have an unbeatable combination of "talking points" that means more sales. These three Burnham Boilers are *quality* throughout . . . *quality* materials, *quality* engineering and *quality* performance!

◀ *Burnham PACEMAKER**

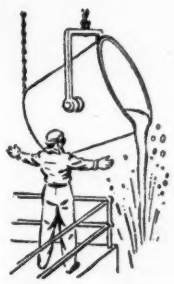
Here's the oil-fired boiler that hit the jackpot of popularity because its high quality and fine performance belie its low competitive price. Its double combustion chamber and vertical flue travel over hundreds of heat-grabbing fins, its large direct heating surface make it highly efficient. Built-in all copper tankless water heaters can be supplied for plentiful year 'round domestic hot water. PACEMAKER is made of cast iron for long, trouble-free service; and it's shipped assembled for low cost installation.

Burnham GAS BOILER ▶

PB SERIES



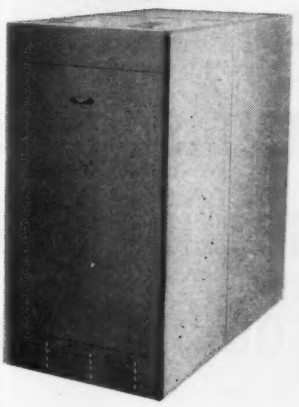
Here's the nearest thing to perfection in a gas boiler — a dual purpose unit designed always to give the best in automatic heating plus economical year 'round domestic hot water with specially designed, all-copper Pendant† and Super† type tankless water heaters. Power burner efficiency — accurate metering of gas and air give perfect combustion. Short refractory tunnel reduces excess air, burns gas completely — result: extra hot "fire-ball" flame.



BURNHAM PRODUCTS WEAR LIKE IRON . . . BECAUSE THEY'RE MADE OF IRON

*Reg. U. S. Pat. Off.
†Patented

Burnham YELLO-JACKET ▶



Here's an all-fuel boiler you'll be proud to sponsor. Its exclusive design and overall efficiency make the heating dollar go farther. Long vertical, lateral and horizontal fire travel, a heat retaining trap, a large combustion chamber and hundreds of heat-grabbing fins are all contributing factors. Plentiful domestic hot water supply. Sturdy cast iron for life-long, trouble-free service.

These three boilers will help you to build the kind of reputation that develops new business. PACEMAKER and YELLO-JACKET are available with flush or extended jackets — Gas Boilers with extended jacket. Mail the handy coupon for complete details including ratings!

Burnham RADIANT HEATING SINCE 1877

Burnham Corporation

BOILER DIVISION, IRVINGTON, NEW YORK

FIRST IN THE MANUFACTURE OF BASEBOARD HEATING

I·B·R Member

Burnham Corporation FO-93
Irvington, New York

Please send full information and ratings for
☐ Pacemaker ☐ Gas Boiler ☐ Yello-Jacket

Name .....

Address .....

City ..... State .....

.....

fueloil & oilheat

Educating a power Plant Owner

"BOSS, I'M WORRIED," announced an expert at servicing big burners. "You aimed to have 120 gallons of No. 6 oil do the work done previously by one ton of hand-fired No. 1 buck coal. I'm talking about the factory job we started up three months ago. The three 200 hp boilers used 2,000 tons of coal a year.

"The trouble is that it's taking 150 gallons of oil to equal one ton of coal. The owner will find out pretty soon he won't get the reduction in fuel bills we promised him—practically guaranteed in writing."

"Anything wrong with our burn-

Stack Temp. °F.	Stack Loss %
250	13 1/2
300	15
350	16 1/2
400	18
450	19 1/2
500	21 1/4
550	22 3/4
600	24 1/4
650	25 3/4
700	27 1/4
750	29
800	30 1/2

Stack Temp. °F.	CO_2 5%	7 1/2%	10%	12 1/2%
250	20	15 3/4	13 1/2	12 1/4
300	22 3/4	17 3/4	15	13 1/4
350	25 1/2	19 3/4	16 1/2	14 3/4
400	28 1/4	21 1/2	18	16
450	31	23 1/2	19 1/2	17
500	34 1/4	25 1/2	21 1/4	18 1/2
550	37	27 1/2	22 3/4	19 3/4
600	40	29 1/2	24 1/4	21
650	43	31 1/2	25 3/4	22 1/4
700	46	33 1/2	27 1/4	23 1/2
750	49	35 3/4	29	24 3/4
800	52	37 3/4	30 1/2	26 1/4

S.S. 43 JWS.

Left. *Simple table, geared only to 10% CO_2, first posted in the boiler room.*

Right. *More complicated table posted later. The burner dealer told the factory owner the first, simple table had been prepared because of an error. The dealer had made the mistake of thinking the burners were adjusted at all times to give CO_2 readings of precisely 10%. The importance of high CO_2 readings dawned on the owner after, having grown accustomed to using the first, simple chart, he had to make allowance for CO_2 as he used the right-hand chart. Reading stack temperatures is an excellent idea. But to gain an idea of stack losses, CO_2 readings must be used also.*

standard's perimeter wall register
gives you . . .
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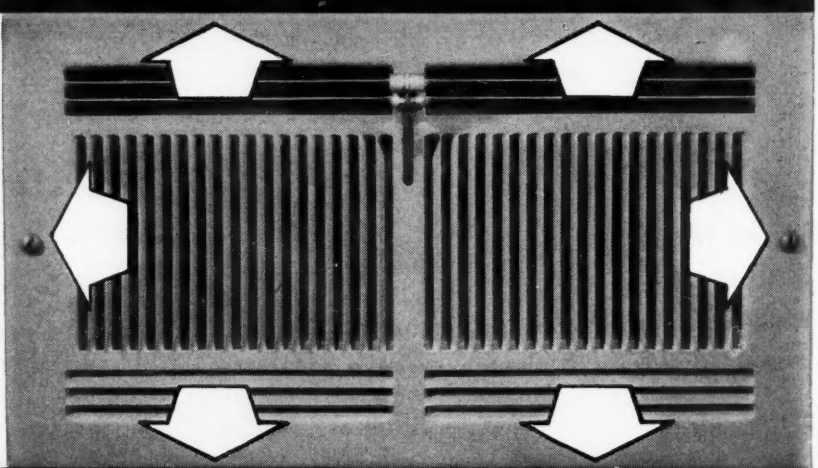
360
complete
hemispheric
heating and
cooling comfort



4 WAY DIFFUSION FOR BALANCED AIR CIRCULATION

- METALLIC FINISH
- STANDARD SCREW HOLES
- SINGLE SHUTTER CONTROL
- SMART APPEARANCE
- FOR SIDEWALL AND BASEBOARD INSTALLATION

STANDARD'S THE BEST FOR PERIMETER REGISTERS. Standard leads the field with its new, improved PERIMETER WALL REGISTER! Its 4-way diffusion supplies correct warm air distribution along the outer cold walls and even temperature control throughout each room. Standard also provides a perimeter register for baseboard outlets. Easily installed. Immediate delivery in sizes to suit your needs. Write NOW for complete information!

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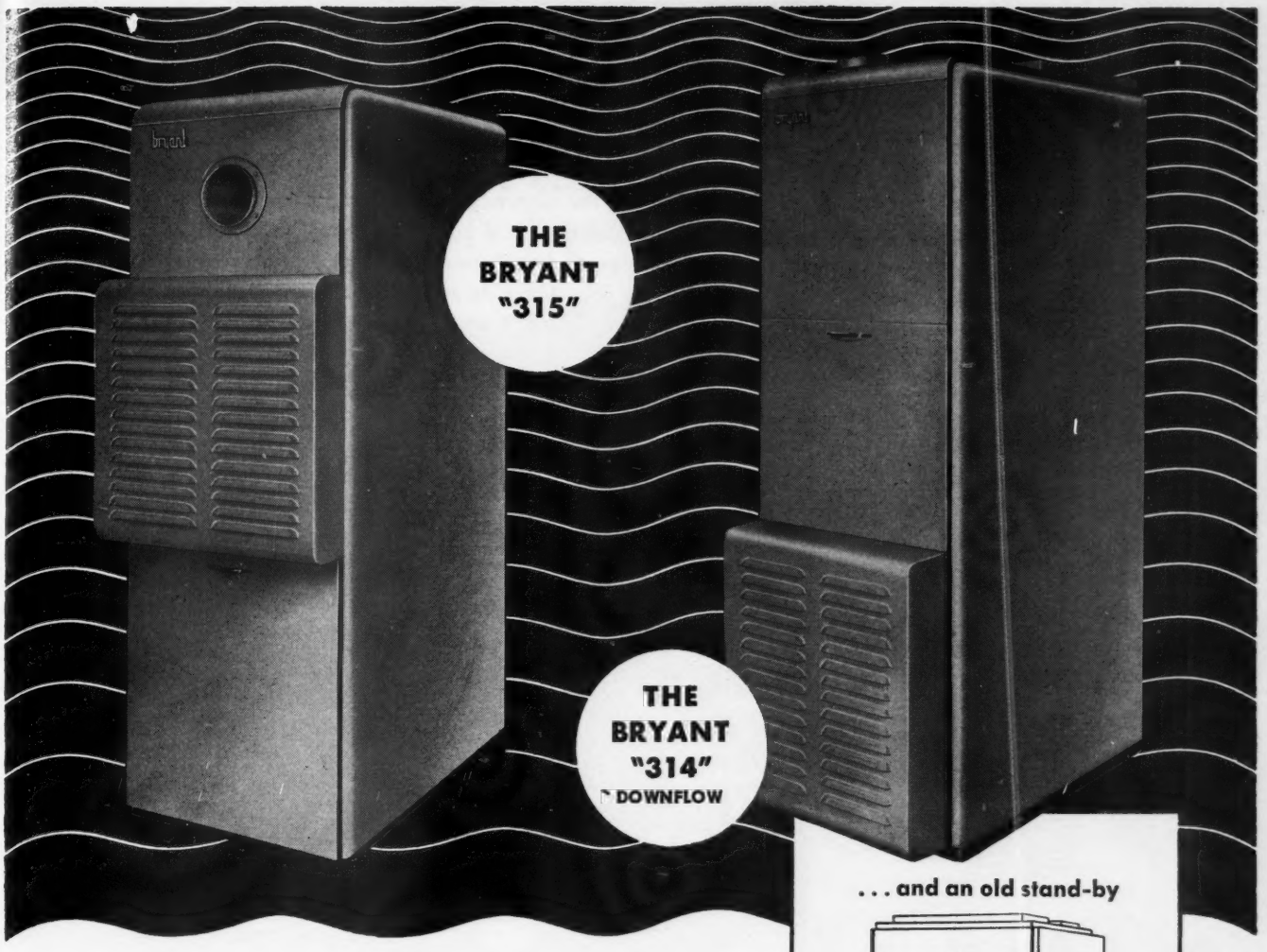


2 new

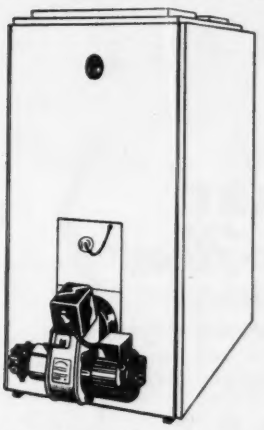
PROFIT OPPORTUNITIES FOR YOU!

THE BRYANT "315"—There's a *double* profit opportunity for you in this new, compact forced air furnace. It's more than just a new furnace—it's the oil heat "twin" to Bryant's famous "Command-Aire" summer air conditioner. So when you offer the "315" you gain the opportunity for the big double sale—*both heating and cooling.*

THE BRYANT "314"—This new unit answers your need for a compact, high-quality oil furnace for downflow heating systems. Like the "315", the "314" is priced low to keep your margin up. And typical Bryant quality keeps profit-shrinking "call backs" down. The "315" is available in six inputs, the "314" in three inputs.

Contact your nearby Bryant distributor for complete information. Or simply write: Bryant Heater Division, Affiliated Gas Equipment, Inc., 17825 St. Clair Avenue, Cleveland 10, Ohio.

. . . and an old stand-by



THE BRYANT "308"—Your own experience tells you how easy it is to sell this high-quality, basement-type unit. It's the very finest in oil-fired heating equipment.

THERE'S NO PLACE LIKE HOME WITH A

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• HEATING • AIR CONDITIONING • WATER HEATING

ers?" asked the boss.

"No, but there's a lot wrong with the owner. Part of it is our fault. We equipped each boiler with a stack thermometer and made plenty of fuss about how that saves oil. We didn't argue with the owner when he started over-emphasizing the importance of stack temperature readings. Now he thinks low stack temperatures are all there's to it—all there's to fuel economy. When a stack thermometer reads 20° higher than usual, he has the boiler flues cleaned."

"How is that raising the oil bills 25%?" asked the burner dealer.

"The owner's gotten around now to adjusting the flames himself. At first, he didn't dare touch the burner adjustments. Now, by watching me, he's learned how to adjust the oil rate and the primary and secondary air. I adjust for nice, highly efficient flames each time I see the job, which is at least once a week since I started worrying about its excessive oil consumption. Getting 12% CO_2 and a low smoke instrument reading is easy. I'm not out of the boiler room five minutes before the owner changes my adjustments to get the bright, white flames he likes. He cuts the oil rates a bit and increases the air to the flames more than a bit, winding up with the stack temperature unchanged.

"Next time I call, I find the burners set for CO_2 between 4% and 7%—stack losses therefore excessive, fuel consumption excessive by about 25%. That's putting it mild.

"He simply won't give me a minute to explain the relationship of CO_2 readings to flue gas losses and boiler efficiencies. Won't even look at a CO_2 instrument or stack loss chart. He thinks stack temperature is everything. What can I do?"

The next afternoon the boss gave the serviceman a table about three feet high which a sign maker had just finished. A copy appears here at the left-hand side of the illustration.

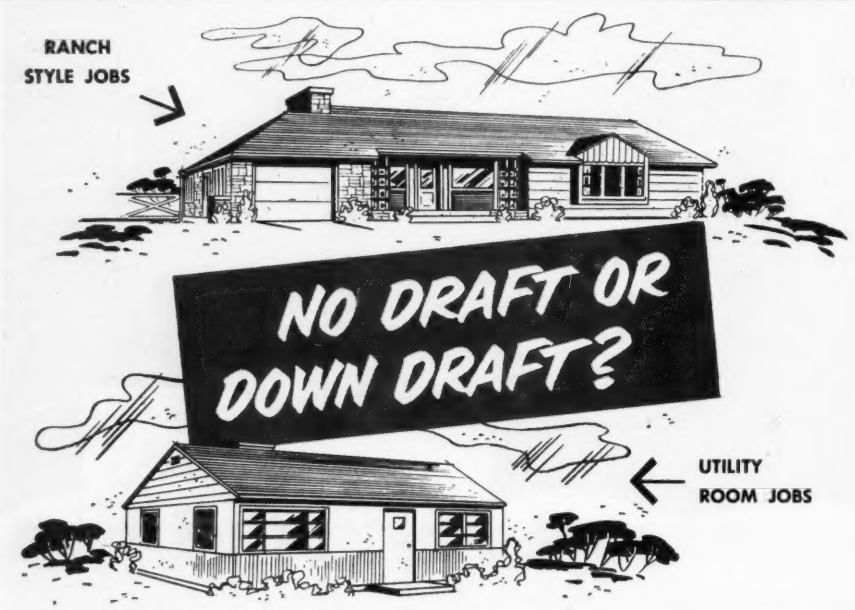
"Tack this up in the boiler room and tell the owner it gives stack losses in terms of stack temperatures," the boss told the worried serviceman. "Just do what I tell you. Three or four times during the next week, stop at the job and make certain the factory owner is reading his three stack thermometers, then is looking at this chart to find out his stack losses."

"Seems wacky to me," the serviceman muttered, "but he sure will love this table. I can guarantee that."

"Not wacky, just very simple," the boss chuckled. "It shows such things as 750° stack temperature jibes with losing 29% of the heat in oil up the stack, and 500° stack temperature jibes with 21¼% stack loss. Tell the owner that. Get him to use the chart!"

Two weeks later, having prepared beforehand for this, the burner dealer and his serviceman appeared on the factory job carrying the accompanying right-hand chart. Their version of it was three feet wide and three feet high, however.

"I made a mistake in sending you that simple chart," the burner dealer explained. "Thought you had CO_2 indicators and recorders, and always ran at 10% CO_2. You can see by this big, new chart that your old chart reads only in terms of 10% CO_2. As your old chart shows, 750° stack tempera-



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TO CURE PULSATIONS!
(ON 0.65 TO 1.65 GPH INCLUSIVE)

Only
HART
Gives You
All Four!

1. Guaranteed to cure pulsations.
2. Silent operation.
3. No "cut and try" adjustments — head welded in as part of draft tube and nozzle assembly.
4. CO_2 readings 10.5 to 12.5% without smokiness.

Difficult low, zero, or down draft jobs in ranch-type homes or other "problem" homes lick themselves when you use the new HCM model HART Oil Burner with the Supra-Flame Head. Pulsationless burning is guaranteed!*

*MONEY-BACK GUARANTEE
(to experienced, bonafide oil burner men)

Order a HART Supra-Flame Burner. Install it on your toughest pulsating job and poorest draft conditions. If, within 60 days, you are not completely satisfied in every way with the HART Supra-Flame Burner, we'll take it back and *refund price of burner, no questions asked!*

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Division of Avery Farm Machinery Co.
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Phone 4-9271

ORDER NOW. PHONE COLLECT, TELEGRAPH OR WRITE ON LETTERHEAD

Now From **DETROIT** Comes

the biggest sales booster to hit the hot water heating field in years!

Weatherbrain indoor-outdoor control regulates room temperature all winter long without ever a manual adjustment.

Now you can cash in on big, new profits in the hot water heating field with DETROIT'S amazing Weatherbrain Control.

That's because Weatherbrain indoor-outdoor control offers heating comfort never before possible in forced hot water heating systems—constantly uniform and completely automatic. Once installed, the user never makes a manual adjustment of any kind. The Weatherbrain Control's outdoor bulb senses changes in outside temperature and responds instantly by supplying the exact amount of heat to keep room temperature right where it should be! And because it is entirely mechanical in operation with no expensive, complicated electronic gadgets to go wrong, Weatherbrain Control is less costly and more easily installed than any other control of its type. See your DETROIT wholesaler or write for Bulletin No. 254.

CHECK THESE FEATURES

- Varies the water temperature delivered to panels or radiation in exact accordance with the demands of the weather.
- All mechanical; no delicate mechanisms, electronic tubes or relays.
- Well adapted to zone systems because of its simplicity and reasonable cost, and where the electrical boiler resetting type control will not work.
- Gradual changes in water temperature in the system minimize the undesirable effects of thermal expansion and contraction.
- Very valuable where more than one type of radiation is used.

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ture means 29% stack loss. But that's at 10% CO_2 as the new chart shows. Look here, at 5% CO_2, 750° stack temperature means 49% stack loss. At 12½% CO_2, 750° means 24¾% stack loss."

"Boss, on this job I always adjust for 12½% CO_2," the serviceman interrupted.

He explained to his boss how conscientious he was about this, referring frequently to the new, big chart, already tacked up in the boiler room. The factory owner listened intently, though of course he did not take part in the conversation. After all, he owned the big place and wasn't taking any orders or instructions from a mere serviceman! Oddly enough, though, from then on the burners were adjusted only by the serviceman.

❖

Gustin L. Toohey, 56, assistant manager of Sun Oil Company's Furnace Oil Sales in the Philadelphia area, died August 15 in Pennsylvania Hospital, after a year's illness. Toohey had been with Sun Oil Company for 17 years, and prior to coming to Philadelphia in 1945, was manager of Furnace Oil Sales in Detroit. He is survived by his wife, Marguerite A.; two daughters, Patricia A. and Joan Marie; his mother, Sarah, and two sisters. Funeral services and burial were in Detroit.

❖

Radiant Glass

(*Begins on page 60*)

One type of glass panel was subjected to thermal shock tests, such as rain coming through a window or shower spray in the bathroom. The main effect was an increase in power demanded by the panel due to the water's cooling action. Mechanical shock tests showed that the principal weakness was in resistance to shock around the edges.

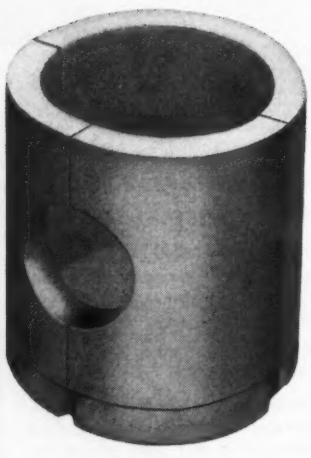
The results of these tests indicate that electrically-heated radiant glass panels constitute a satisfactory method of warming a well insulated basementless house from the standpoint of temperature gradients in the vertical and horizontal directions, floor temperatures and general comfort. Accepted methods for calculating heat losses may be used to determine the total capacity of heating units required. Total energy required to produce a desired condition of warmth may be slightly less with electric panels than with more conventional heating units because of the absence of piping or duct heat losses, because reverse heat losses from heating elements are lower and because the individual room thermostats more readily prevent overheating of any of the rooms.

❖

Household Magazine surveys heating system Purchases

THE FOURTH SURVEY made among *Household* magazine subscribers indicates a continuing large demand for appliances and equipment in the nonmetropolitan market. "What's new in '52" covers buying trends in small-town households and revals that heating and insulation are highly-favored items in buying plans.

Do Your PRESENT PRECAST CHAMBERS Give You ALL these Advantages?



1. Low initial cost.
2. Low installation cost — only 5 pieces to assemble.
3. K-factor equal to insulating brick.
4. Excellent performance with either high or low pressure burners.
5. Scientifically packed to prevent breakage.

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Sell the MAGIC of HOT WATER COMFORT by AMERICAN-Standard

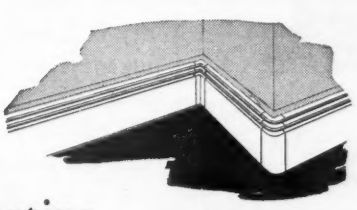
and you sell cleaner, more uniform, more comfortable heat than any other system can afford

ADVERTISED IN LIFE

Some prospects still think of hot water heating as old-fashioned. As an American-Standard retailer selling the finest of boilers and baseboard heating panels, you are just the man to set them straight about this.

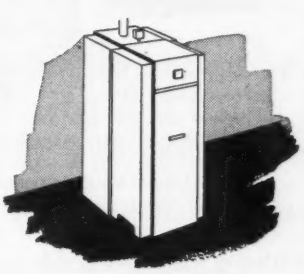
Point out to your prospects how forced hot water heating with baseboard panels gives perfect comfort control with compact, efficient equipment.

Be sure they realize the magic of hot water for modern heating. Point out its tremendous heat-carrying capacity . . . water gives off 6000 Btu per cu. ft. as it cools 100°. Explain how the 1" copper tube of a baseboard panel can throw a belt of protecting warmth clear around the cold outside rim of the house, regardless of the size or construction of the house.



Hot water heating is modern in appearance . . .

Show your customers how easy it is to have an attractive installation like this in their homes. These Heatrim panels take the place of regular baseboards, permitting freedom of furniture arrangement. They will provide even, gentle heat *throughout* the room.



Hot water heating gives longer years of service . . .

To make your customers aware of the trouble-free years ahead for them when they have a hot water heating system, show them the wide variety of long-lasting cast iron boilers by American-Standard. And be sure to point out that the life of a cast iron boiler is far greater than that of other types of heating units.

When you sell your customers the magic of hot water comfort you sell them complete heating satisfaction . . . for the years ahead.

American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.

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AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWANEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

Fueloil & oilheat

Last year 177,750 subscribers of *Household* magazine insulated their homes and 105,750 invested in some type of heating system. Warm air furnaces bought totalled 62,250, with 60,750 of these equipped with blowers and 4,400 put in gravity systems; 20,250 subscribers installed steam or hot water heating systems, 18,000 purchased floor furnaces and 114,750 subscribers added thermostats to their heating plants last year.

Some 1,029,500 of the homes involved in the survey already are insulated and 1,222,200 have heating systems, but nearly 50% of all subscribers do not yet have insulated homes, 42% are prospects for heating systems and 49,500 designated heating and airconditioning as their next major purchase.

A tabulation of fuels used in the heating systems purchased last year by *Household* subscribers shows that 47,250 purchased oilfired equipment, 38,250 installed gasfired jobs, 9,000 preferred L-P gas, 11,250 systems used coal or wood and 9,000 were equipped with coal stokers.

Finally, 69,750 subscribers purchased circulating heaters and stoves, divided: 38,250 oilfired, 20,250 gasfired, 6,750 using L-P gas and 6,750 burning coal or wood.

❖

Central Cooling Units

(*Begins on page 54*)

heated and the opposite is true—both decrease—when the air is cooled.

The performance of an evaporator depends on these factors: 1) Sensible heat capacity; 2) Latent heat capacity; 3) Area, or physical proportions; 4) Refrigerant temperature; 5) Air velocity. There is only one way to arrive at the effect of these various factors and that is through a laboratory test. The combined effect will later be referred to when the operational characteristics of the refrigeration units are discussed as a whole.

The sensible capacity of an evaporator, or its ability to change (lower) the dry bulb temperature of the air going through it, increases with the dry bulb temperature of the air coming into the evaporator, other variables held constant. This is logical, just as the rate of flow of water between a lake located on a mountain top and one in a valley will be greater than if the level of one lake were only a few feet higher than the other. The same principle applies to heat as applied to difference in water levels.

Instead of measuring the level of heat in "feet" we express it as temperature "degrees". Heat will flow at a greater rate between two substances of great temperature differential than it will between two substances at almost the same temperature. Hence the sensible heat capacity of an evaporator will be greater when the entering air is at 80° than when the entering air is at 70°.

Remember this principle because it applies to all evaporator and condenser problems. Both fundamentally are heat transfer surfaces.

The latent capacity of an evaporator is its ability to dehumidify or remove water vapor from the air passing through it.

A rise in coil temperature results in

Enlarge, Expand Your Business With a Red Streak

Super Red Streak Model SH—For both wet and dry, hot and cold cleaning. May be equipped with Supertex Filter Bag at slight extra cost. Note that Supertex bag is standard compact size, not over-size.

There's no better way of increasing your business, beating competitors to sales opportunities for repairs, improvements and parts—even new installation—than with a Super Red Streak Model SH Furnace Cleaner. Get heating plants ready for winter now. You get the best results, more satisfied customers with a Red Streak. Easy to operate. Clean chimneys from basment up without disturbing the household or endangering operator. Chimney cleaning tools are standard equipment.

The Super Red Streat will clean any type of heating plant. Clean them all; sell conversions and oil plants. Let our experts tell you how. Ask your supplies dealer. Write for the free sales plan book.

Non-Clog Filter Bag

Supertex filter bag is made of special porous fabric with high resistance to clogging, destructive action of acids, etc. Film formed in bag by these elements breaks and falls, leaving bag pores open, fabric undamaged. Slight extra charge.

FREE
Super Sales Plan Book

It's easy to build a profitable furnace cleaning business. This book tells you how. Your wholesaler can give you complete information on the Super Red Streak Model SH or ask us.

Super cleaners are approved by Underwriters' Laboratories and Canadian Standards.

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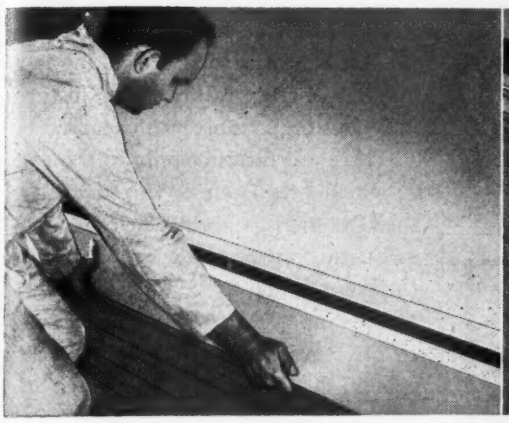
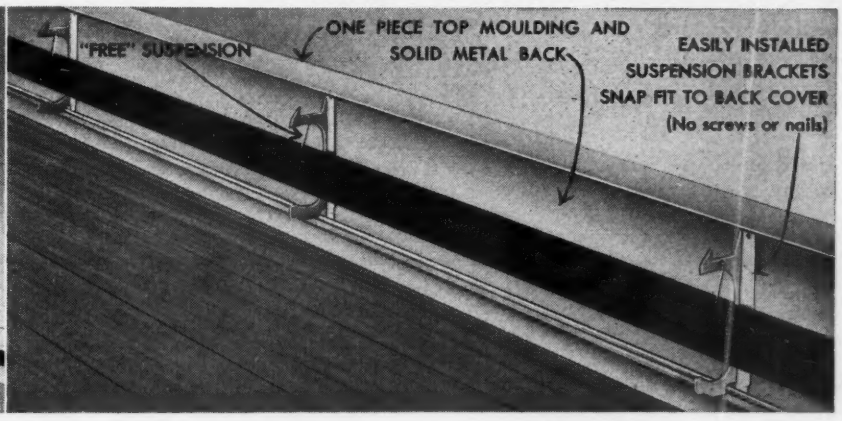
1951 N. 12th St., Toledo 2, Ohio
In Canada: Plant Maintenance Equipment Co.
Toronto, Montreal, Vancouver

"Once Over Does It"
SUPER SUCTION®
SINCE 1911
"THE DRAFT HORSE OF POWER SUCTION CLEANERS"

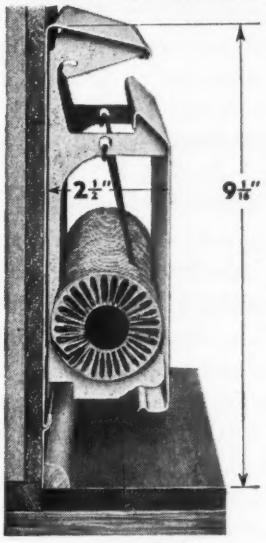
New "Floorlevel" Heating Gives
Reg. U. S. Pat. Off.
BIGGER BASEBOARD PROFITS!

2 New Installation Features




"FREE" SUSPENSION
ONE PIECE TOP MOULDING AND SOLID METAL BACK
EASILY INSTALLED SUSPENSION BRACKETS SNAP FIT TO BACK COVER
(No screws or nails)

IT'S EASY TO INSTALL!



It's totally enclosed!

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General Automatic . . . Baseboard Heating pioneer . . . now adds two brand-new features to *Floorlevel* Baseboard Radiation:

1. TOTALLY ENCLOSED CONSTRUCTION!

Featuring new all-metal back with snap-on, all-metal front panel . . . and—the new, easier to install wall brackets . . . *no screws necessary!*

RESULT: 37% Less Installation Cost . . . Greater Heat Output!

2. NEW-TYPE HANGERS!

For suspension of element designed to eliminate all operating noise . . . caused by "creeping" and expansion of metals.

FLOORLEVEL BASEBOARD HEATING COSTS

37% LESS TO INSTALL!

SEND FOR SPEC. 56

WARM AIR BASEBOARD HEAT IS AVAILABLE TOO. WRITE TODAY FOR FULL DETAILS!

A COMPLETE PACKAGE

Minimizes inventories and eliminates added cost for assembling orders. Contains complete system, ready to install. Packages available to meet any size installation requirement.

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a decrease in the differential between the coil temperature and the dew point temperature of the entering air. The dew point temperature is that point at which the moisture in the air condenses, or more accurately, the water vapor in the air changes from vapor to liquid form. The greater the differential between the dew point and the coil temperature the greater the latent capacity of the evaporator.

It should be kept in mind that each characteristic of an evaporator is not independent of the others. Therefore, referring to the sensible capacity, any increased load imposed by a rise in dry bulb temperature of the entering air results in an increase in coil temperature which in turn decreases the differential between the dew point temperature and coil temperature, a decrease in latent heat capacity. A rise in the dew point of the entering air increases the latent heat capacity, resulting in a rise in coil temperature which in turn decreases the sensible heat capacity.

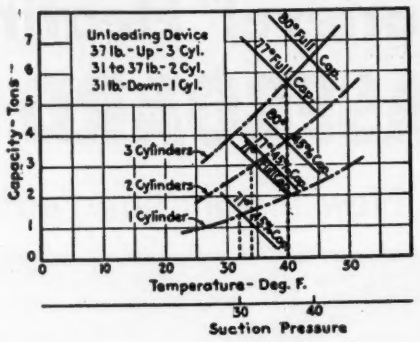

Fig. 5. *Relation of capacity to temperature and suction pressure for a regulated system with unloading compressor.*

There are certain limits to the rate at which Freon can be forced to flow through an evaporator. There must be sufficient contact surface to distribute the Freon liquid to the interior surface of the evaporator so it may be exposed to the temperature of the air flowing around the evaporator and change this liquid to vapor in a limited time.

All other variables such as refrigerant temperature and air temperature remaining constant, the capacity of an evaporator is directly proportional to its useful surface.

This feature is used by cutting off approximately 60% of the evaporator surface with a thermostatically-controlled solenoid valve.

The expansion valve is to insure that all of the evaporator surface available will be used no matter what the heat load may be.

Primarily, the refrigerant temperature is regulated by controlling the pressure in the evaporator. Since the liquid Freon introduced into the evaporator is boiling through control of the pressure, the boiling point temperature can be held within specific limits. Lowering the refrigerant temperature increases the capacity of an evaporator to absorb both latent and sensible heat.

The capacity of the compressor, though, is affected in exactly the opposite direction—the lower the suction pressure (temperature at evaporator) the less compressor capacity.

The ruling characteristic happens to be that of the compressor, so the capacity of the unit as a whole increases with (refrigerant temperature) suction pressure. Many references have been made to the refrigerant temperature in discussing the other characteristics of the evaporator.

The refrigerant temperature can be considered the basic gage of the evap-

SAFE FILL NOZZLE PLUG
A Quick Tight Connection For Fuel Oil Delivery

Prevents Dangerous Pressure

new
Hy-car
Synthetic

Indispensable with Ventalarm

SPEEDS UP VENTING, safe fill tapered nozzle plug is especially developed for use with VENT-ALARMS, it allows pumping speed to be stepped up.

•

TIGHT CONNECTION eliminates excess air to be sucked in through fil pipe while tank is being filled.

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SAFE FILL tapered nozzle plug is the only approved and patented tight connection on the market — it has a safety valve that pops off at approximately 5 lbs. P.S.I. prevents rupturing oil tank.

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SAVES TIME & LABOR, permits faster filling, drivers are able to cut down the pumping time by as much as 50%.

Sold By All Leading Jobbers.

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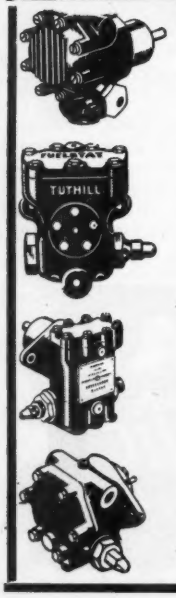
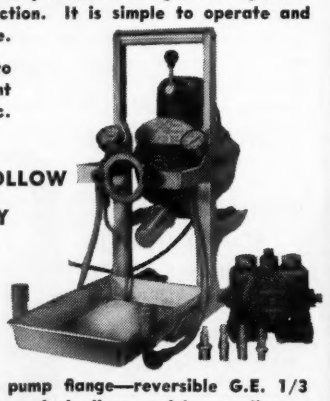


Dan-D-Portable Fuel unit tester

- This tester will more than pay for itself the first heating season.
- You can now save untold dollars by testing and servicing your fuel units yourself. This newly developed portable testing unit is guaranteed to give you complete satisfaction. It is simple to operate and does a complete job. You need one.
- With this testing unit it is possible to test and make repairs to different make pumps, valves, fuel units, etc.

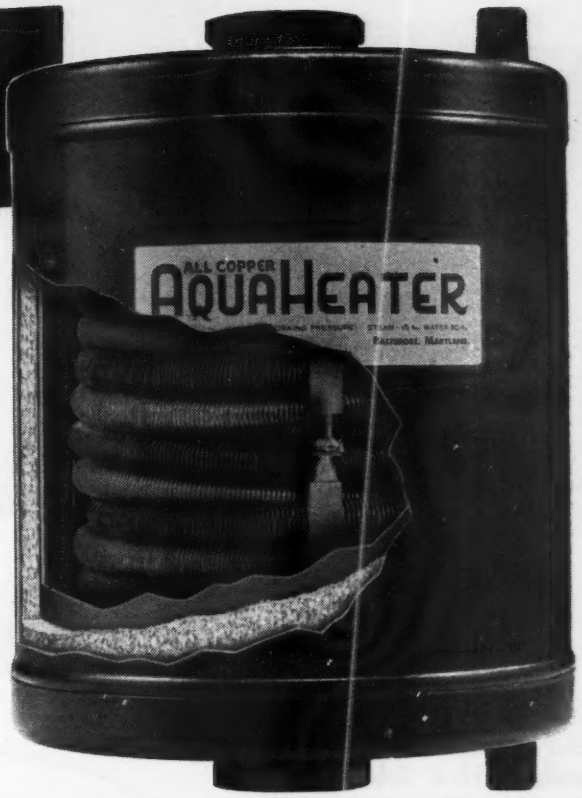


★ INSTRUCTIONS EASY TO FOLLOW
★ NO EXPERIENCE NECESSARY
★ PUMP REPAIRS SIMPLE
★ STANDARD PARTS USED THROUGHOUT

Sold By All Leading Jobbers.

- Tester is furnished complete with pump flange—reversible G.E. 1/3 H.P. motor—U.S. gauges—pressure fuel lines—quick couplings—adaptors—parts catalog and complete instructions.

REVOLUTIONARY



ONE THIRD THE FORMER WEIGHT

Yes Sir! From 95 to 31½ lbs. (on 6 gal. per min. size); 20% smaller in size, 15% increase in performance, 18% **reduction in cost**—that, in a copper nutshell is the story of the new All-Copper AquaHeater!

Astounding? It is indeed. No heater ever equalled the hot water capacity of the original AquaHeater. It was tops. Now with **greater** capacity, **smaller** size, **less** weight and **lower** cost, AquaHeater is way out in front again.

LARGER HOT WATER CAPACITY!

MUCH EASIER TO HANDLE AND INSTALL

Plumbers and Supply Houses appreciate the smaller size, reduced weight, greater ease of handling and the lower price of the AquaHeater. Installation, storing, shipping are greatly facilitated. Let these brilliant new features help step up your water heater sales.

FULLY INSULATED

Standby heat losses are reduced to a minimum by a thick blanket of the Fiberglas insulation. This is held in place by the outer Hammertone Copper Brown metal shell—a neat, attractive appliance.

GUARANTEED BY THE MANUFACTURER

A manufacturer's 15 year guarantee is packed with every All-Copper AquaHeater. A copy of this guarantee will be sent to you on request.

FINNED COPPER TUBING MAKES MORE HOT WATER FASTER

Increase in performance of the AquaHeater as well as reduction in weight is due to the use of finned instead of bare copper tubing in the coils. This new development in tube design is being widely adopted by boiler manufacturers.

Order Today

Order today to be sure that you get your share of this profitable water heater business.

BUILT-IN WATER HAMMER ELIMINATOR

A sealed air column in a unique cone shaped copper coil effectively reduces water hammer. It is so designed and located in the heater that it also serves as a baffle evenly distributing the hot boiler water over the finned coils.

NEW COPPER WATERWAYS

With AquaHeater's newly engineered all copper inner shell, finned copper coils and brass fittings no water ever comes in contact with iron or steel. Copper jacket, top and bottom-ribbed for greater strength. Built-in Fiberglas insulation. Outside metal shell finished a rich Hammertone Copper Brown.

ALL COPPER **AQUAHEATER**®
The Insulated Tankless Water Heater
GUARANTEED FOR 15 YEARS

Manufactured by

Jos. E. LEWIS & CO., Inc.
Baltimore 30, Md.

Fueloil & oilheat

SPEED deliveries

cut operating costs with

North Coast Oil Company uses Type "T" (auxiliary engine-driven) and Type "G" (power take-off) Marlows on their home delivery truck fleet and Type "EL" (electric motor-driven) Marlows on loading rack service. Installation by Shields, Harper Co.

MARLOWS

Fuel oil marketers everywhere are using Marlow Self-Priming Centrifugal Pumps to speed service and cut operating and maintenance costs. Marlows on loading rack service fill more trucks per day. Marlows on tank trucks and semi-trailers make more stops per day. Modern Marlows are compact and easy to install. They prime automatically and operate smoothly and quietly. The principal moving part is an impeller turning in the liquid . . . nothing to wear. Pumping action continues almost indefinitely at high capacities and high efficiencies.

For complete information, see your Marlow dealer or write for bulletin PM 50.

In Canada: PUMPS & SOFTENERS, LTD., LONDON—CANADA

MARLOW PUMPS RIDGEWOOD, NEW JERSEY

Branch Plants: DeQueen, Arkansas; West Chicago, Illinois

Other factories in France and England. Distributors and Dealers everywhere.

332

orator operation. The refrigerant temperature is determined by the evaporator pressure since the Freon exists in the evaporator in a state of transition from liquid to vapor and the temperature at which this transition takes place (boiling) is determined by the pressure alone (boiling point temperature).

Referring to Fig. 7 it can be seen that the lower the evaporator temperature the greater the capacity.

This follows logically when we again refer to the "flow of water between lakes." As the evaporator temperature lowers, the differential between the evaporator temperature and the air temperature flowing around the coils becomes greater; hence, we get a higher rate of heat flow or capacity.

Evaporator characteristic curves are usually diagramed with refrigerant temperature and capacity in tons as the coordinates. For combining evaporator with compressor capacity curves the evaporator temperature also can be expressed as suction pressure. When reading Figs. 3, 4, 5, 6, and 7 consider the evaporator temperature coordinate as suction pressure when dealing with compressor performance.

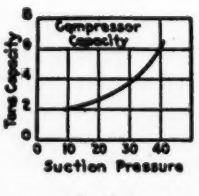


Fig. 6.

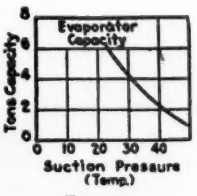


Fig. 7.

A rise in refrigerant temperature results in lowering both the latent and the sensible capacity because the differential between the coil temperature and the dew point, and the coil temperature and the dry bulb temperature both decrease. The dew point is lower than the dry bulb temperature so the percentage reduction in latent capacity is greater than the percentage reduction in the sensible capacity. Therefore, a rise in refrigerant temperature results in lowering the ratio between the latent and total capacities.

An increase in the air velocity through the evaporator causes an increase in sensible capacity and usually in latent capacity. But an increase in the air velocity through the evaporator

also will cause a rise in the coil temperature. This rise in coil temperature will reduce the differential between the coil temperature and the dew point temperature, and the coil temperature and the dry bulb temperature of the entering air. Both the sensible and latent heat removed per pound of air are reduced in this manner, the reduction in latent capacity being greater because the dew point is always lower than the dry bulb temperature. An air velocity increase always lowers the ratio of latent to total capacity. But, since more pounds of air are handled, even if the heat removed per pound is less, the sensible capacity of an evaporator rises with air velocity.

The increase in air velocity also raises latent capacity, except in cases where the dew point and the coil temperature already were close together. In these cases the latent capacity will be reduced with increased air velocity or be eliminated altogether.

Why should the subject of air velocity be considered when the fan runs at constant speed? Because dirty filters and disconnected flexible ducts cause definite tell-tale pressure indications which will be discussed later.

The reason such details are important is that the serviceman must work with a refrigerating machine made up of compressor, condenser, evaporator and piping, whose respective capacities must balance each other at any stable

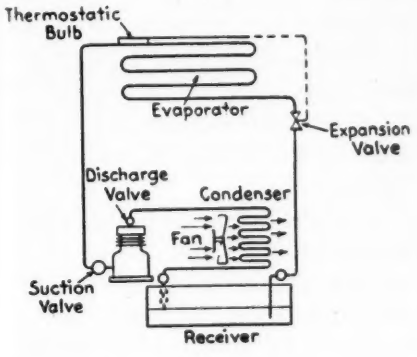


Fig. 8. *Complete diagram of an air-conditioning system showing the relation of the essential parts.*

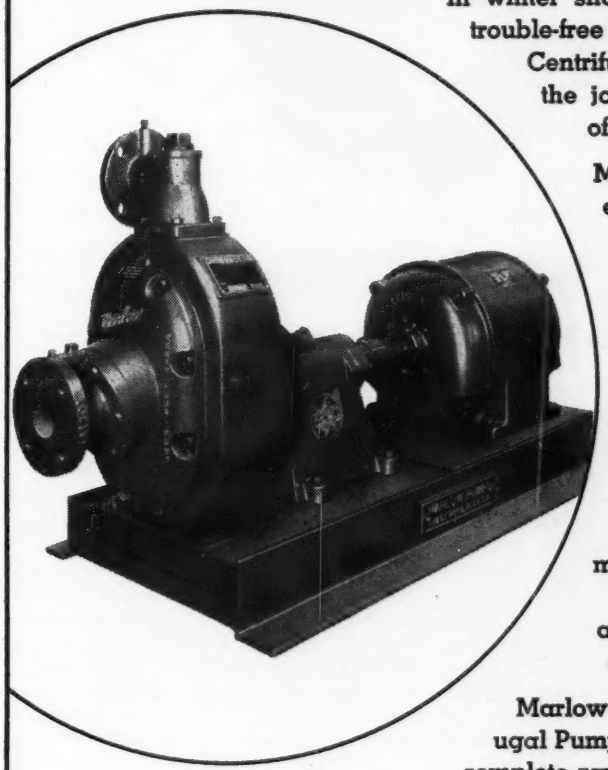
operating point of the machine and work together. By knowing the characteristics of all the components, the mechanic will understand how this balance is achieved or, in case of trouble, how this balance is being upset.

SPEED handling of petroleum products with

Four Marlows used by a major oil company in Western Canada to unload gasoline, kerosene, fuel oil or diesel oil from tank cars in temperatures from 100°F to —25°F. Installation by Pumps & Softeners Ltd., London, Ont., Canada.

MARLOWS

In winter snow or summer heat, trouble-free Marlow Self-Priming Centrifugal Pumps stay on the job to speed delivery of petroleum products.



Majors and independents alike are buying more Marlows for high-capacity, low-cost pumping. Marlows prime and purge themselves automatically, even on suction lifts, because of their patented "diffuser" construction. A mechanical shaft seal eliminates drip . . . assures safe handling of hazardous liquids.

Marlow Self-Priming Centrifugal Pumps are available in a complete range of sizes from ¾" to 10"; capacities to 300 GPM.

For complete information, see your Marlow dealer or write for bulletin PM 50.

In Canada: PUMPS & SOFTENERS, LTD., LONDON—CANADA

MARLOW PUMPS

Other factories in France and England.

RIDGEWOOD, NEW JERSEY

Branch Plants: DeQueen, Arkansas; West Chicago, Illinois

Distributors and Dealers everywhere

384

Vaporizers build

(*Begins on page 46*)

tomer receives $10 for each lead furnished that results in a sale. About 75% of all live leads that develop into sales come from users and the company sells 50% more equipment from satisfied customer leads than from advertising leads. There is no retail price differential between vaporizing and gun burner installations in the Home Equipment setup.

The service setup includes a $13.50 service contract that gives emergency service and an annual cleanup and overhaul; no parts, however. This same contract costs $18.50 if the customer is not a fueloil account. Twenty-four hour service is furnished. Non-contract emergency service runs $4 per hour.

A unique feature of the customer relations setup is a "heating clinic" held every Tuesday night. This is open to the public, which is invited to come and bring its heating problems. These meetings, which average about 8 to 10 people all through the year, provide personal contacts for the 8 man sales force, (one permanent, seven part time) that sells a good amount of new equipment. The clinics have been running for two years and will continue.

By now all the Licciardi Brothers have built themselves substantial new homes in suburban Rochester. As far as they are concerned the automatic heating business is good.

❖

Tight Check Valves

(*Begins on page 65*)

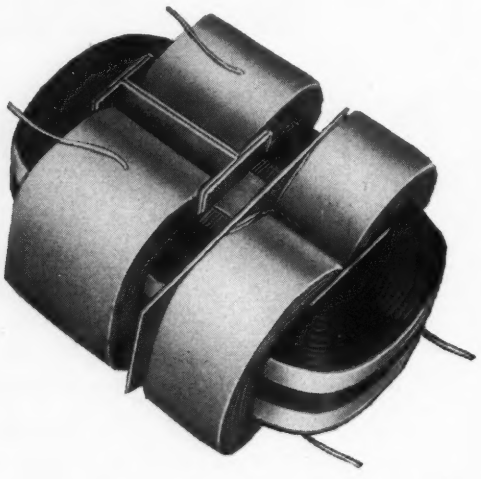
unit a tough on-the-job test for leaks of all kinds, including shaft gland leaks and shut-off valve leaks. The drawing shows a return-line job. Similar testing of a one-line (no return line) job is even simpler, is performed in a manner obvious to burner experts.

Install in the return line the tight-closing check valve shown in Diag. 2. Tongue test this valve first for tight closing. Start the burner. With the firing door open for safety, close the suction-line hand valve. When the vacuum gage gives its maximum reading—above 20" or 25" for a good fuel unit — close the suction-line hand valve, then stop the burner. Read the vacuum gage. In ten minutes, read it again. Its reading will not drop if the fuel unit is free of leaks. If the vacuum drops and you think a leaky shut-off valve is to blame, plug the nozzle-line port of the fuel unit—use a well-doped, air-tight pipe plug—and repeat the test. Eliminating the leak causes the vacuum gage to continue to give a high reading during the test.

A return line should be used where the level of oil in a nearly-empty fuel-oil tank is below the level of the fuel unit. This applies to many basement fueloil tanks connected to high-boy warm-air furnaces. Yet occasionally you encounter an installation that involves lifting oil from a storage tank to a gun burner, but which has no return line.

Diag. 3 shows how to start an air-bound pressure burner, which hasn't the return line it should have and therefore won't air-rid itself.

First, set up the fuel unit for two-



MAGNEX IGNITION TRANSFORMERS

Have The Exclusive Tape Wound High Grade Silicon Steel Core

The tape wound steel core construction in Magnex transformers was developed for the armed forces and electronic laboratories during the war, to obtain high efficiency, lower losses, cooler operation and to reduce the size and weight of transformers for aircraft, portable equipment, radar, etc. Magnex engineers were the *first* to apply modern techniques developed for radar and pulse transformers, adapting this method for *oil burner use.* Although the initial cost of tooling up for the manufacture of a one piece, continuous tape wound core is great; the end product results in a more expensive type, low heat rise transformer at *considerable savings.*

MANUFACTURERS SELL MORE BURNERS!

Magnex ignition transformers use the *best quality materials and workmanship,* assure longer, trouble-free oil burner performance. Burner manufacturers get greater customer satisfaction from dealer to owner—which means repeat business. Formvar insulated wire used throughout allows full short circuit protection. Positive shielding eliminates radio and television interference. Core and coil balanced construction is unique.

"Quality Products because our Reputation depends on Outstanding Performance"

For use with external or internal junction box, scientifically designed and constructed Magnex transformers are housed in one piece, baked enamel steel cases for easy installation. Made to standard and custom specifications, terminal locations, designs, and base mountings are available for individual burner manufacturer's needs.

MAGNEX Corporation

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Subsidiary of Nathan Straus-Duparquet, Inc., New York, N. Y.

line operation—as if the job had a return line. Install the temporary return line Diag. 3 suggests, spilling into a pail.

Second, start the burner and permit it to air-rid itself in the way a burner connected to a return line usually air-rids itself. Help it if necessary by venting air from the fuel unit. The suction line will fill with fueloil, even though a considerable lift is involved from the oil in the storage tank to the fuel unit. Fire the burner five minutes.

Third, and with the firing door open for safety, quickly close the hand valve in the suction line—this locks the suction line full of oil—then quickly turn off the burner.

Fourth, set up the fuel unit for one-line (no return line) operation, spilling as little fueloil from it as possible.

Fifth, start the burner, then quickly open the hand valve in the suction line.

Points on proper locations for suction-line check valves:

1. Make certain beforehand that you use only check valves that can pass the tongue test. Otherwise, you may install check valves that leak. In that case, the check valves will do little good no matter where you install them.

2. Ordinarily on new jobs having air-tight fueloil lines, install the suction-line check valve at or close to the fuel unit. That and using a check valve that passes the tongue test solves all loss-of-prime problems on at least 99 jobs out of 100.

3. On a job that's been losing its prime for years, install the check valve as close as possible to the fueloil storage tank—where the suction line from a buried tank enters the basement. This is an effort to locate the check valve where it will do most good, on the tank side of suction-line leaks.

4. On problem jobs, install two good, tongue-tested check valves, one at the burner, the other in the suction line and as close as possible to the fueloil tank.

❖

Hoffman S. Beagle has joined the staff of Electrical Testing Laboratories, Inc., New York, as assistant to the president, after being with The Miller Co., Meriden, Conn., for 15 years.

General Electric

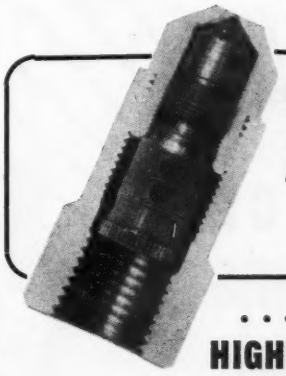
(*Begins on page* 61)

when the thermostat circuit is closed. It won't start because the ignition heater is still warm from the last time the burner ran, therefore is keeping open the line-voltage contacts that turn the ignition transformer on and off.

Proper starting of the burner includes, then, completing the secondary circuit of the transformer-relay. The result of doing this is to snap closed the motor switch and the low-voltage hold-in contacts of the transformer-relay. These contacts are in series with the ignition heater.

The burner motor now is running, and the ignition transformer is providing a spark.

If the smokepipe helix does not open the "Cold" contacts of the flame detector within 90 seconds, as it should because the flame is burning properly, the lock-out heater will cause the safety switch to snap open—then the burner is "off on safety."



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HIGHEST QUALITY + DEPENDABLE RATINGS + LOWEST PRICES = the NOZZLE for YOU!

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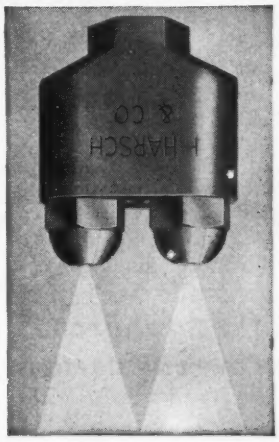
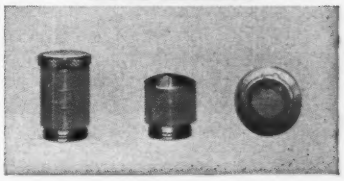


19 NOZZLE KIT

STRAINERS



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230 TUSCAN ROAD **MAPLEWOOD, N. J.**
Kresno-Stamm Mfg. Co. (Canada) Ltd., Montreal, Canada

If the flame detector properly opens its "Cold" switch and closes its "Hot" switch within a reasonably short time because the flame is burning and the smokepipe temperature is rising, the flow of current through the lock-out heater is cut off, and a flow of current is started through the ignition heater. The flow of current through the ignition heater causes the two contacts affected by this heater to snap open simultaneously in about one minute (after the ignition heater first receives current); opening the left-hand ignition heater contacts in Diag. 4 prevents a burner re-start with the ignition heater warm and the ignition transformer turned off; open the right-hand ignition heater contacts turns off the ignition transformer.

Flame failure causes the "Hot" contacts of the flame detector to open quickly. The burner stops. The "Cold" contacts of the flame detector close promptly, but the burner does not start for them. It waits because a scavenging period is involved—the ignition heater must cool and its contacts must close before the burner can re-start.

If you snap the main switch of the burner off and on after the burner has been running a few minutes (long enough for the ignition heater contacts to open), the burner will not re-start immediately. It will wait for the ignition heater contacts to close. Snapping the main switch off and then snapping it on again immediately simulates momentary failure of the electric current, of course.

The men who really love these G-E oilburner controls can give dozens of reasons for their enthusiasm. Here's a few:

1. Made by General Electric; designed, engineered, and put into large-scale production with the full help of the vast resources of the fabulous General Electric. "Can a company as big as G-E go wrong, even in the field of oilheating?" ask the men who believe in the G-E label.

2. Out-of-this-world performance of the nichrome-and-quartz detector rod in the unique flame detector. Response to flame failure in a matter of seconds, with the control arranged for this as far as installation and location details are concerned.

3. Easy to sell, because the public knows G-E; easy to install; easy to service.

4. Simple design throughout.

5. Needs no on-the-job adjustments of any kind, for it's factory-calibrated—this applies to the safety control panel. No expensive, time-taking tinkering to match control response and timing to peculiarities of different installation.

6. Rugged, long-lasting construction.

7. Controls mount in any position.

8. Strong, good-looking covers are easy to remove, and best of all seldom must be removed by a serviceman!

❖

F. R. Dickerson was elected vice-president and general manager of the Geo. D. Roper Corp., pump division, Rockford, Ill. Dickerson started his business career with Roper as sales engineer in 1936. Dickerson became sales manager in 1948 and general manager of the pump division in 1951.

PERFORMANCE
NOT PROMISES

A filter is only as good as its performance. Promises don't filter fuel oil. The Honeycomb Filter Tube in Fulflo Filters is a guarantee of dependable oil burner performance.

Installation of Fulflo Filters will cut down on your unnecessary service calls, and will build customer satisfaction for you.

Stock the filter brand that is proven by demand

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NO PUMPHOUSE NEEDED!

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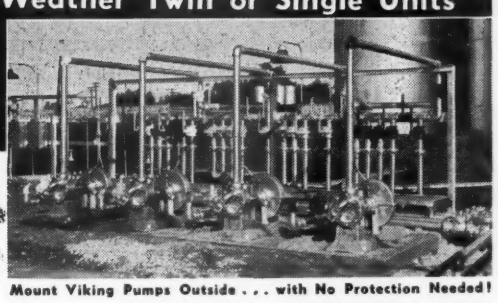

Mount Viking Pumps Outside . . . with No Protection Needed!

Either winter or summer, no protection is needed for Viking all-weather single or twin units.

Made for pumping all types of petroleum and chemical products from the very lightest to the most viscous.

Out door units add safety to the pumping job as well. No fumes to collect.

Neater and handier to use. No cramped quarters creating hazardous and unsightly conditions. Makes possible easier and less costly piping arrangements.

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When ordering for domestic use, specify Type "C" and pipe size, ⅜″ or ½″.

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Sundstrand OIL BURNERS

Enthusiastic reception by the public explains the higher sales frequency of the Sundstrand all-electric oil burners. With a Sundstrand, the most modern concepts of warm air heating are realized. . . . That's not enough; with a Sundstrand, initial low-cost is matched by long-span oil burner performance.

. . . These values and the Sundstrand reputation for the finest in oil heating add up to complete customer satisfaction. Foot or bracket mounted, all Sundstrand oil burners are listed as standard by Underwriters' Laboratories . . . and meet all state and local requirements.

A leader in oil heating for 33 years.

SUNDSTRAND ENGINEERING CO., Rockford, Illinois

Conservation

(*Begins on page 43*)

counters, and magnetometers like the ones used to detect submerged submarines during World War II.

The information these instruments gather regarding the depth, shape, and composition of rock strata far underground is recorded and sent to oil company laboratories for study. Interpreted, it gives a picture of formations where oil possibly may be located.

The surveys that look most promising then are turned over to ground crews of geologists and other scientists. These go out with jeep caravans, or behind pack mules where the terrain is too rough for wheeled vehicles. When they reach their destination, they make camp and use other instruments — including the seismograph, originally developed for charting earthquakes, to locate more accurately the underground formations that just possibly may contain oil.

Then the wildcatters, or exploratory drillers, move in with their portable rigs. They drill holes into formations indicated by the geologists. They have to do this because, when all is said and done, only the drill can find the oil itself. Today's oil men make much better-informed guesses than early oil men did, of course. (The pioneers depended on hunches, split willow wands, spiritualistic mediums, and even dreams, when choosing their well locations.) But even with all the help that science can give, many an indicated new field still turns out to contain little or no oil. In fact, only one well out of every nine drilled in new territory is able to hit oil.

In spite of this hazard, careful, nationwide exploration by our privately managed oil companies succeeded in raising America's proved petroleum reserves to the record high level of almost 33 billion barrels by the end of 1952. To put it another way, last year more than a barrel of oil was located for every barrel withdrawn from the ground. After all demands by consumers were met, three-quarters of a billion barrels were left over and were added to the nation's proved reserves for future use. That, I submit, ladies and gentlemen, is conservation with a capital "C."

Don't imagine, however, that oil conservation is limited to the mere accumulation of reserves. As soon as a new field is brought in, other conservationists get busy at the job of seeing to it that every possible drop of available oil is brought to the surface.

In the old days, the discovery of a new field was the signal for derricks to sprout all over it like mushrooms. That scramble took place because, back in the 1860's, '70's and '80's, the courts ruled that oil was subject to what they called "the law of capture." It was considered, by people who then knew very little about it, to be in the same category as a wild animal. It became the property of the first person who could "catch" it. Under those circumstances, drillers naturally drilled as many wells as they could as fast as they could—never mind the expense or waste.

But that wasn't the worst. Much

Here's the very Best in Tankless Heating

COMPACT: saves space.
WELL-DESIGNED: ample water circulation around coils.
HEAVY CAST IRON SHELL: means a lifetime of service.
REMOVABLE COILS: Sil-Fos brazed for strength.

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. . . Cast Iron Tankless Heaters

LOW-COST . . . extremely efficient . . . conservatively rated.

You're sure of trouble-free Summer-Winter water heating jobs when you install KAM Tankless Heaters: backed by almost 50 years of experience.

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oil was lost when hurriedly-drilled wells came in out of control or caught fire. Big new fields often glutted the market and sent prices tumbling to a few cents a barrel. Much of the surplus evaporated, burned, or sank back into the earth. Worse yet, when all the wells in a new field were allowed to flow unchecked, they quickly exhausted the underground water or gas pressure, which is the only thing that can push oil toward the surface.

Does that statement sound too technical? Well, let me use an example with which you are all familiar: If you shake a bottle of soda water and then remove its cap, a lot of gas and some of the water fizzes out in a great rush. But when the fizzing stops, about two-thirds of the water remains in the bottle. On the other hand, if you open the bottle carefully and use a siphon, you can get practically all of the water out of it before it goes flat.

Back in the nineteenth century, when oil was produced under no controls, much the same thing happened to many fields. They went dry, although as much as 80% of the oil still remained underground.

Oil men themselves were the first to realize that such waste had to stop. Other groups of people agreed with them. Eventually, the Interstate Oil Compact Commission came into being. Today, as a result of efforts by the Commission and other conservation bodies, oil fields are produced at — or near — their maximum efficient rate. This technique maintains underground pressures. Those pressures push every possible drop of oil out of the wells.

In spite of all the care taken to keep unwanted water and gas underground, some of it does come up with the oil. At one time, escaping gas was burned at the wellhead. The water (often salt water) was allowed to flow into nearby streams.

But a petroleum engineer had a bright idea. Why not get rid of that water and gas by pumping it back underground? He tried it. He was amazed to learn that the more of the unwanted materials he pumped back into the field, the more oil the field produced! He had hit on the conservation technique known as repressuring, pressure-maintenance or, in some cases, secondary recovery.

Today, some fields once thought to be worn-out are being repressured and made to yield "second harvests" of oil that often are larger than the first ones. And nowadays pressure maintenance starts in many new fields as soon as they are brought in. As a result of these measures, as much as 80% of

PULSATION TROUBLE?

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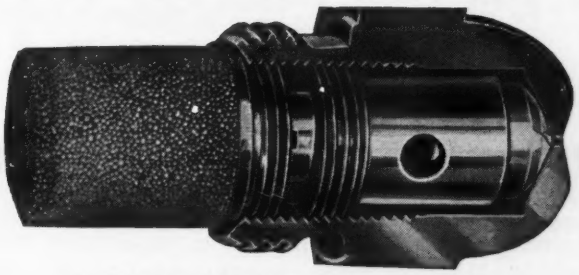

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1. Monarch F-80-AR series 80° angle nozzle.
2. Recommended Monarch F-57 Air Cone and H-451 Stabilizer.
3. Solenoid shut-off Valve for nozzle line.

Set the Monarch equipment according to our recommendations in catalog "O" and see for yourself that *results* are obtainable!

These combinations have been proven by actual use in thousands of installations over a period of years. They will positively minimize if not completely cure ordinary running pulsation so prevalent in many small highly restricted units.

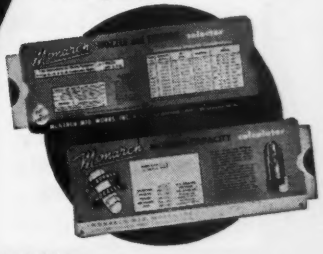
Do you have new Catalog "O"?

"48" Nozzle Box

Don't jumble your nozzles loosely in your tool box like "nuts and bolts" if you expect them to be usable. Carry as many as 48 nozzles securely in this sturdy, compact steel box.

Nozzle-Firebox Slide-Chart

No more digging through catalogs for proper nozzle capacities for certain loads, correct fire box sizes for different firing rates, or nozzle capacities at different operating pressures. This pocket slide-chart gives all these (and more) figures at a glance.



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the available underground oil may be brought to the surface. And that percentage increases every year.

Not all gas produced is used for repressuring. It may be put through a process that strips it of valuable liquids, such as natural gasoline. Then the dry gas may be used to produce a host of petro-chemicals for the manufacture of everything from synthetic rubber to paints and plastics.

Now I have hardly scratched the surface of conservation in just one sector of the oil industry. I could go on discussing production for an hour and then spend another hour or so telling you how oil companies have built up their amazingly efficient manufacturing, transportation, and marketing systems. I do want, however, to mention a few conservation techniques employed by refiners — techniques that stretch our oil supplies still further.

In the early days the products most in demand were kerosene and lubricating oil. These could be refined out of crude petroleum in about the right proportion by "cooking" the crude.

Then, about 1910, gasoline suddenly became the country's primary need. But there is only a limited amount of gasoline in crude oil. What to do? Find and refine fantastic quantities of crude?

Petroleum chemists and technologists came up, instead, with another conservation technique. They had found that heat plus pressure would cause the larger hydrocarbon molecules of crude oil to break up, or "crack." They also had learned that the resulting smaller molecules would recombine under such circumstances to create more gasoline. So they distilled crude oil under high heat and pressure, and hoped for the best.

The stills held up until better ones could be designed. Meanwhile, the gasoline yields increased tremendously. In 1918, at about the time that the thermal cracking process was introduced, a barrel of crude yielded 25.3 per cent gasoline. By 1952, the yield was 43 per cent. This means that thermal and other cracking processes had the effect of almost doubling America's oil resources. I leave it to

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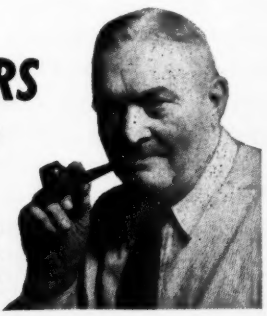
"SPARKLER FUEL OIL FILTERS . . . have saved me a lot of grief in servicing burners"



—says one fuel oil dealer. If you keep the fine tank rust out of the fuel line you don't have clogged burner tips. The rayon filtering element in a Sparkler filter does just this, consistently all during the heating season.

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The Grand Rapids DeLuxe Furnace Cleaner is also your "in" for more than cleaning profits. By checking over and inspecting the heating plant as you clean it you are in a position to make timely recommendations for new equipment or repairs. This means better service for customers . . . more profits for you.

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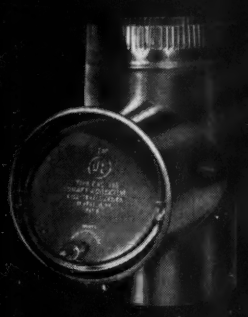

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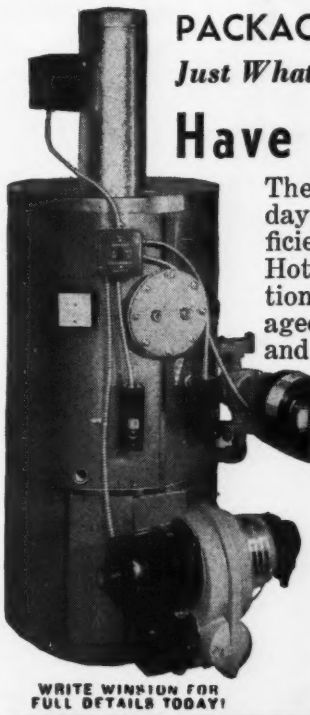

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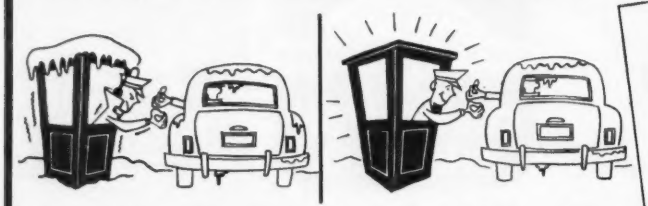

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"THEY'RE ALWAYS DEPENDABLE"

"LIQUIDS WORTH STORING ARE WORTH MEASURING"

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your imagination to figure out where we would be today if that conservation practice had not been discovered.

The next step after thermal cracking was catalytic cracking. In this operation, an inert catalyst, such as alumina, silica or bentonite clay, is introduced into the process. For some reason not yet clearly understood, it allows the production of vast quantities of products without resorting to the use of excessive heat and pressure.

Catalytic cracking also makes it possible to vary product yields within a wide range. By this method, for example, the refiner can produce more gasoline for use during the summer and more heating oil to meet winter requirements. On top of all this, the quality of all products is improved.

I could go on and on in this vein. I could tell you how oil wells are drilled under water from huge platforms—how drill holes are curved to reach deposits under the ocean, or under mountains, swamps, lakes—even under the Oklahoma state capitol building—how chemists have learned to make gasoline and other liquid fuels from coal, shale, and gas, just in case our petroleum reserves ever do run low.

(The following paragraphs are suggested so that the oilheating dealer can address this portion of his talk directly to his own or other fueloil customers. The dealer, of course, can use the following intact or may want to change it to include specific points about his community or company:

Now to remind you of measures that you can take to participate in a conservation program, remembering conservation as the efficient use without waste of our natural resources. In the United States there are better than six-and-a-half million oilburners in use for residential heating. Many of you here, I know, are as familiar with heating oil as a petroleum product as you are with the gasoline you use in your car.

The magazine FUELOIL & OIL HEAT *has determined that last year the average gallonage of fueloil consumed by residential customers was just slightly more than 1,500 gallons. That's average, so if your home is larger or smaller than average, you can figure generally that your fueloil consumption should have been proportionately more or less. But that figure should be interesting to you, because if you regularly consume more gallons of fueloil than average, your heating system either is exposed to unusual conditions or it has some deficiency that can be corrected. In the New England states, for comparison, the average consumption last year was 1,562 gallons; South Atlantic states averaged a little more than 1,200 gallons; Midwest, 1,514, and the Pacific Coast states, 1,100 gallons.*

If you have any doubts about whether your fueloil consumption is normal or excessive, then your fueloil dealer is the man you should consult. More averages show us that the average fueloil distributor has 1,100 heating oil customers and these naturally range from the very small to the very large companies. But each dealer, because he is familiar with local weather conditions, for instance, and because he knows from his delivery records what other home-owners are using, can tell you quickly just how efficiently your oilheating system is

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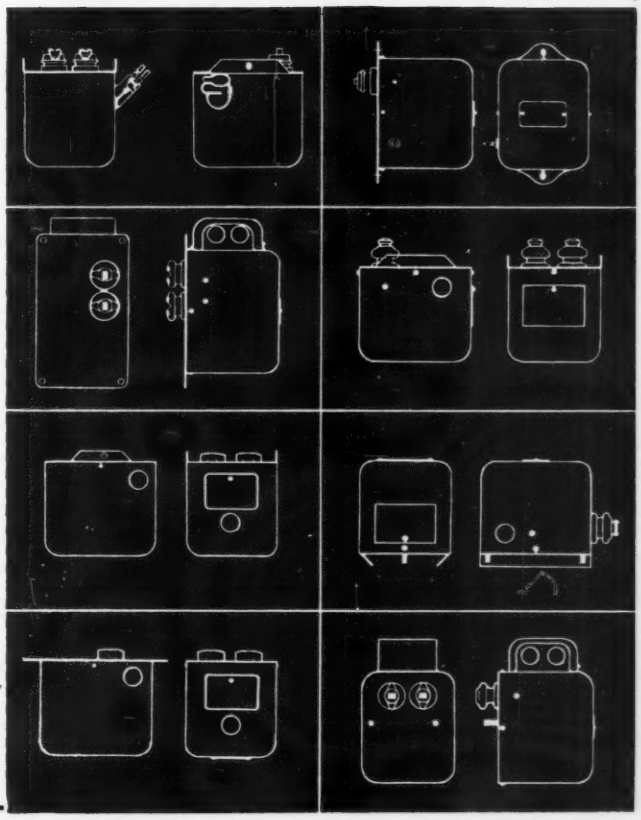
We invite oil burner manufacturers and dealers to investigate the exceptional performance features of Acme Electric ignition transformers. These transformers have been designed to supply secondary current characteristics that we believe will make your oil burner installations more satisfactory by pleasing the buyer, by minimizing service calls. Carefully manufactured to high quality standards that are evidenced in the performance of the equipment you supply.

Available in mounting designs to exactly meet your needs. For testing samples and further information write.



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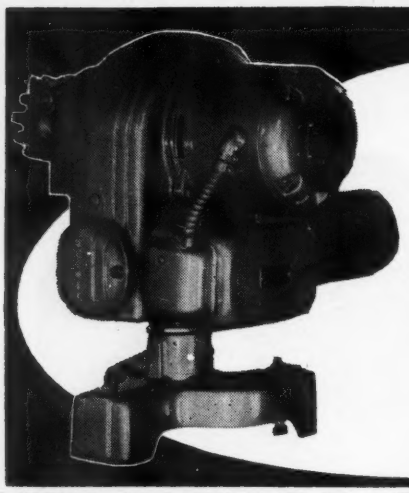

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** Conclusions resulting from independent survey of oil burner dealers.*

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performing.

And he's anxious to get that opportunity, too. His business is founded principally on service to his customers —and don't think that service is confined exclusively to mechanical repairs —and he knows that the best service he can render is to make every oilheating installation function as efficiently and as satisfactorily as it possibly can. The oilheating dealer will be able to suggest corrective measures, if they are needed, to bring your oil consumption into line.

This is a good time anyway to discuss with your oilheating dealer how much fueloil you burn each heating season. It's like a visit to a doctor for a check-up. If he says you're okay, you're as pleased as you'll be when your oilheating dealer puts his seal of approval on your heating plant. And, if he finds something wrong, you'll be glad in the long run that he knows how to fix it.

Thus, you can participate in an oil conservation program, because it's so easy for you to find out that you are using fueloil without waste. And of more immediate interest, you can bank the savings that come to you through lower fueloil consumption and higher heating system efficiency.)

But I think I have made my point: In a world where so many nations either waste their oil and other natural resources or fail to develop them, America's two million oil men are true conservationists. And America's 42,000 competitive, privately-managed oil companies are cooperating with individuals, government agencies, and other industries to promote the progress, security, and prosperity of the American people.

Why should this be so? I think it is because we were among the first people to realize that a natural resource is worthless unless, and until, it is used. All the waterpower, iron, or fertile land in the world is of no value to anyone until people develop the will and know-how to put it to work.

A nation which lacks that will and know-how starves in the midst of potential plenty. Its standards of culture are low. It is at the mercy of dictators or aggressive neighbors. It falls easy prey to quack economic and political theories. It is ripe for slavery. It eventaully collapses, just as Rome fell. It collapses, not because it lacks resources, but because it misuses, or fails to make good use of them.

We in America—we here today—are fortunate that our nation has rich natural resources. We are much more fortunate that, because of the climate of freedom in which we live, we have learned to develop those resources. Be-

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1. BLOWS OR SUCKS OUT SLUDGE IN OIL LINES
2. IDEAL FOR TESTING LINES
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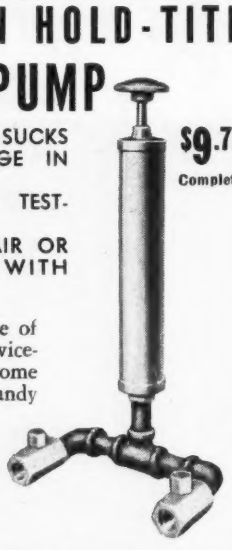

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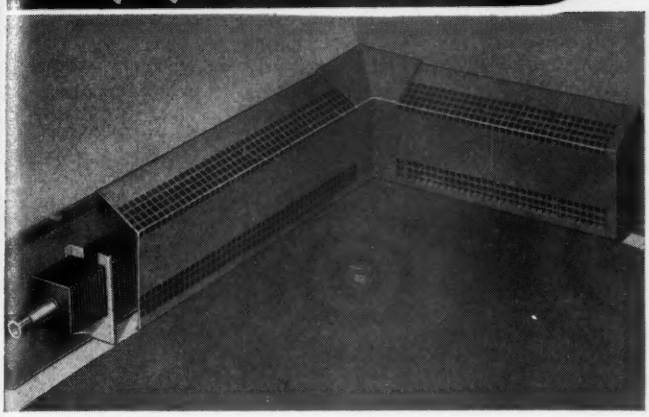

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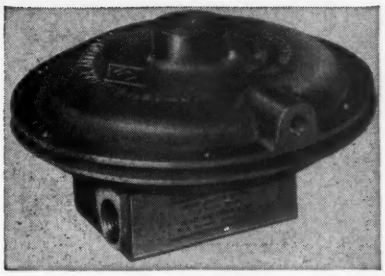
SAFETY SWITCH THAT SHUTS OFF FUEL IF BLOWER FAILS



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WHAT IT DOES

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Insures purging of furnace before fuel valve opens. Closes fuel valve if fan slows up or stops. Flashes danger signal if fan or fuel stops. Safeguards against danger from gas fuel failure when used in connection with safety shut-off valve.

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DRY CELL POWERED
- QUICK
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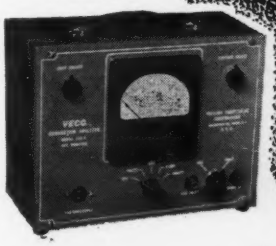
ONE METER FOR ALL THREE READINGS



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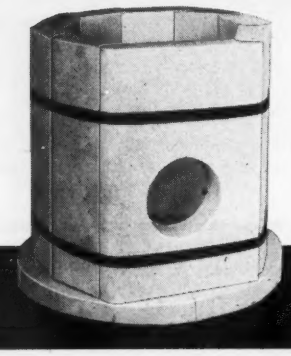
AMERICAN COMBUSTION CHAMBERS *mean Efficient Installations!*



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Made of the finest, high-grade fire-clay material, American Chambers are "Kiln-cured" to withstand temperatures up to 2500° as well as water deterioration. And too — American's high quality materials assure faster heat-ups and quieter burner operation. Find out today why more American Combustion Chambers are being used—than ever before!

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cause of this, our defenses are strong; our living standards high. And we still have leisure for education, travel, recreation, and other good things.

Finally, because we have developed those resources, we also have the time and the energy to think for ourselves. Because we use our heads as well as our hands we cannot be deceived by crackpots and demagogues who seek to compromise our way of life.

That is the reason why all Americans are conservationists, whether we live in cities or on farms; whether we wear overalls or white collars; whether we are teachers, school children, businessmen or housewives. We all know that, so long as we make the best possible use of our resources—not only our farm lands, ore, and fuel, but our manpower and democracy — just so long shall we continue to prosper, make progress, and remain free.

Men and women of the oil industry are well aware of this. They believe in the individual way of doing things. Otherwise they would not work in such a highly competitive industry. They also know that the America we love is the product of its resources, of its people, and of those freedoms guaranteed to all of us by the Constitution.

They pledge themselves to do their full share in the conservation of those precious things because they are building for the future. They understand that conservation is America's lifeline to that future. They are deeply convinced that now, as in the decades and centuries to come, your progress and oil's progress go hand in hand.

Are you the man in the middle?

You can supply the right answers with complete confidence if your next heating installation is a Hayward Rotary Atomizing Oil Burner. Hayward still leads with all the desirable features. Hayward Burners are engineered for maximum efficiency and smooth trouble-free service. Hayward gives you the efficiency edge to outsell gas competition. Why not investigate franchise possibilities now? write:

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